LG PLASMA

QUICK REFERENCE

ALIGNMENT HAND BOOK

Updated 01/06/2011

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PANELS CONVERED IN THE HANDBOOK

(42G1 PANEL) The Following Models use the 42G1 Panel (2008)

42PG20
42PG25

(42G2 PANEL) The Following Models use the 42G2 Panel (2009)

42PQ20
42PQ30

(42T1 PANEL) The Following Models use the 42G2 Panel (2009)

42PJ350

(42V7 PANEL) The Following Models use the 42V7 Panel (2006)

42PC3DVUD
42PM2DS / 2DW
42PM3MVATA / MVHMC / MVMC / MVTA / MVZA
42PM3RV / RV1NC / RVA / RVANC / RVNC / RVS / RVW
42PX3DV / DVA / DVANC / DVAW / DVB / DVBNC / DVBW
42PX3DVNC / DVW
42PX3RVMC / RVZA
42PX4DVAZC / DVEA / DW
42PX4MVHTA
42PX4RVHTA / RVMC / RVTA / RVZA

(42X2 PANEL) The Following Models use the 42X2 Panel (2004)

**DN42PX12X / PX13X / PX13XW / PX40X / DN42PY10X / PY11X / PY11X /
DN42PZ66 / PZ75 / DT42PY10X / DU42PX12X / DU42PY10X /
MN42PZ95XV /
MU42PM12X / MU42PZ90XVMZ42PM12X / MZ42PZ92XV / RP42PY10X /
RT42PX12X / RT42PY10X / RZ42PX12X / RZ42PY10X /
MZ42PM12X / MZ42PZ92XV / RP42PY10X / RT42PX12X / RT42PY10X /
RZ42PX12X / RZ42PY10X**

PANELS CONVERED IN THE HANDBOOK

(42X2A PANEL) The Following Models use the 42X2A Panel (2005)

42PM2D / 42PX2DUC / 42PX4DGS / 42PX4DGS2 / 42PX4DGW / X4DNA / 42PX4DR / PX4DRK / PX4DRKNA / PX4DRKS / PX4DRKW / PX4DRW / 42PX4DS / PX4DUB / 42PX5D / PX5DEB / PX5RTB / DN42PX12

(42X3A PANEL) The Following Models use the 42X3A Panel (2006)

THE FOLLOWING MODELS USE THE 42X3A PANEL
42PB2DR / DR1 / DRNA / DR1S / DRD / DRL / DRLNA / DRNA
42PB2DRW
42PB2RR / B2RRML
42PC1D / D1 / D1ND / D1NF / D1S / D1W / D1DA
42PC1DB / DB1 / DB1ND / DB1NF / DB1S / DB1S1 / DB1W 42PC1DBND/ DCNF / DDA / DND / DR / DR1 / DR1NA / DR1W 42PC1DR2 / DR2NA/ DRA / DRANA / DRNA / DRW / DRW1 42PC1DRWNA / DRX / DRXNA / DW / RRTL / RRZL / RTH / RZH
42PC3D / DHUD / DUD / RAZJ
42PC7DHUA / RHMA
42PM2DNA
42PX3DUE
42PX4D / DAA / DG / DGNB / DNB / DRB / DRBNA / DRBS
42PX4DRBW / DRBW1 / DRBW2 / DRNA / DRNA
42PX5DA / DA1 / DA1NA / DANA / DAW / DMNA / DNA

(42X4A PANEL) The Following Models use the 42X4A Panel (2007)

42PB2RRHML
42PB4D / DAA / DAUA / DNB / DR / DRNA / DRPNG / DTUB
42PB4RTMA / RTTB
42PC1D2 / D2NF / DB2 / DB2NF / DGAA
42PC35ZC
42PC3DA / DANA / DANG
42PC51ZB
42PC5D / DAB / DCNB / DDB / DNA / DNG / DUC / DUL / DZB
42PC5RHTB / RTB / RZB
42PC7RAMA
42PT81ZB

PANELS CONVERED IN THE HANDBOOK

(50G1 PANEL) The Following Models use the 50G1 Panel (2008)

50PG25
50PG20

(50G2 PANEL) The Following Models use the 50G2 Panel (2009)

50PQ20, 50PQ30

(50H1 PANEL) The Following Models use the 50H1 Panel (2007)

50PF95ZA / 50PY3DFUA / 50PY3DFUJ / 50PY3DR / 50PY3DRNB

(50H2 PANEL) The Following Models use the 50H2 Panel (2009)

50PG60
50PG30

(50H3 PANEL) The Following Models use the 50H3 Panel (2009)

50PS30-UB
50PS60-UA / PS60C-UA
50PS80

(50R1 PANEL) The Following Models use the 50R1 Panel (2010)

**50PK950 / 50PK750 / 50PK560 / 50PK550 /
50PK540 / 50PK250**

(50R3 PANEL) The Following Models use the 50R3 Panel (2011)

50PZ950

(50T1 PANEL) The Following Models use the 50T1 Panel (2010)

50PJ340 / 50PJ350

PANELS CONVERED IN THE HANDBOOK

(50X2 PANEL) The Following Models use the 50X2 Panel (2005)

50PM2D
50PX4D / 4DG / 4DGNB / 4DGS / 4DGW / 4DNB
50PX5D / 5DAB
50PY2DR / 2DR2 / 2DR2NA / 2DRUA / 2DRW1
DN50PX13
DN50PY10 / DN50PY11 / DN50PY12N
DN50PZ66
DT50PY10
DU50PX10 / DU50PX41S
DU50PY10 / DW50PY10
MT50PM20 / M10
MZ50PM10 / RP50PX10H
RP50PY10 / RT50PX10
RZ50PX10 / RZ50PY10
TN50PY20 / TU50PY22

(50X3 PANEL) The Following Models use the 50X3 Panel (2006)

50PB2DR/ 2DR1/ 2DR1NA / 2DRA / 2DRANA
50PB2DRNA / 2DRNA / 2DRW / 2RRHML
50PB2RRHTL / 2RRML / 2RRTL
50PC1D / 1D1 / 1D1ND / 1DB / 1DB1ND / 1DB1S
50PC1DB1W / 1DBND / 1DCNF / 1DND / 1DR
50PC1DR1 / 1DR1NA / 1DR2 / 1DR2NA / 1DRW
50PC1DRW1 / 1DRWNA / 1DW / 1RTH
50PM1MATA
50PM2DNA
50PX1DHUC
50PX2DUD
50PX4D1 / 4D1NB / 4D1S / 4D1W / 4DEB
50PX4MHTB / 4RHTB / 4RTB / RZB
50PX5DNA
50PY1DN / 1DNNA
50PY2DR1 / 2DR1NA / 2DR1S / DR1W / DR1W1
50PY2DRG / 2DRGNA / 2DRGW / 2DRNA / 2DRNA
DN50PX12
DN50PX40M

PANELS CONVERED IN THE HANDBOOK

(50X4P PANEL) The Following Models use the 50X4P Panel (2006)

50PB2DR 50X4P / 50PB3DP / DP1 / DR / DRW
50PB4DA / DR / DRP / DT / RT / RTH
50PC1D / D1 / D2 / DB1 / DB2 / R / RR
50PC5D / DP / R
50PC35 / DA / DAP / 51 / 55
50PT81 50X4P / 50PX4MP

(60H1 PANEL) The Following Models use the 60H1 Panel (2007)

60PY3D
60PB4D

(60H2 PANEL) The Following Models use the 60H2 Panel (2008)

60PG30FC-UA / 60PG30F-UA / 60PG3HFD-UA
60PG60F-UA / 60PG70F-UB / 60PG7HFD-UB

(60H3 PANEL) The Following Models use the 60H3 Panel (2008)

60PS11-UA / 60PS60-UA /60PS60C-UA / 60PS80-UA

(60R1 PANEL) The Following Models use the 60R1 Panel (2010)

60PK950 / 60PK750 / 60PK560 / 60PK550 /
60PK540 / 60PK250

(60X6 PANEL) The Following Models use the 60X6 Panel (2006)

60PC1D / DR / 60PY2R / 2D / 2DR / 60PZ9M / MA

(60X7 PANEL) The Following Models use the 60X7 Panel (2006)

60PB4DA / DR / DT

(71H2 PANEL) The Following Models use the 71H2 Panel (2006)

71PY1M

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42G1 PANEL

QUICK REFERENCE

ALIGNMENT HAND BOOK

MODELS USING THE 42G1 PANEL

42PG20
42PG25

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42G1 VS / VA ADJUSTMENT
PREPARATION:

Model : PDP 42G1####
Voltage Setting: 5V / Va:65V / Vs:192V
N.A. / -195 / 135 / N.A. / 100
Max Watt : 330 W (Full White)

VA   VS

1.) Pre-Heat unit for at least 10
    Minutes before making adjustments.
2.) Place unit into White Wash from the Customer's
    Menu for all adjustments.
**3.) Be sure to use all adjustment values as
    indicated on the panel voltage label in the
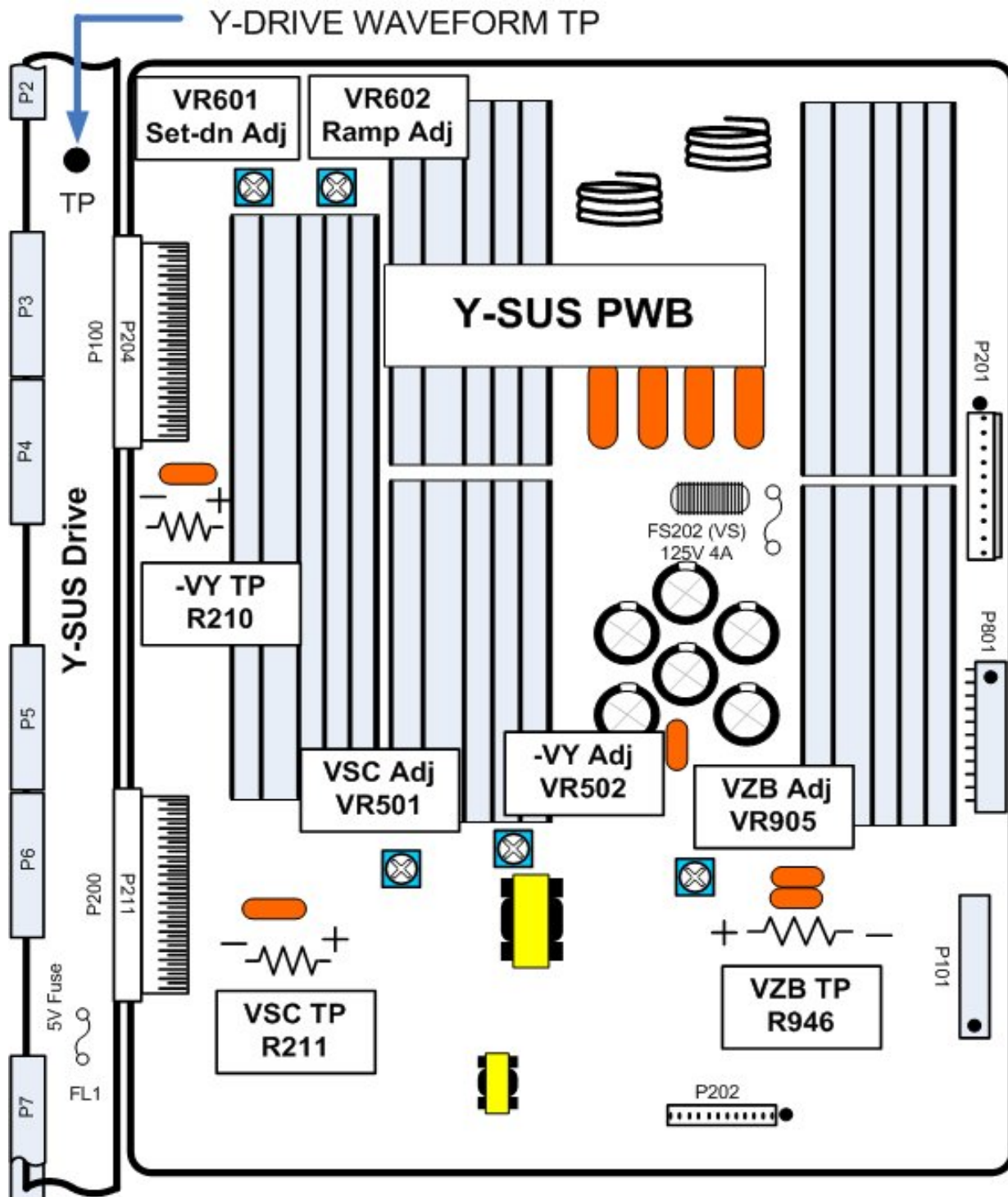   upper left hand corner of the panel. (Example above)**

PROCEDURE: (See preceding figure for locations)

1.) **Adjust VS using VR951**. Measured from **Pin 1 P812**
    to chassis ground. Match Panel Voltage label ±1V.
2.) **Adjust VA using VR901**. Measured from **Pin 6 P812**
    to chassis ground. Match Panel Voltage label ±1V.

42G1 PANEL

P812 VS Pins 1 or 2
      VA Pins 5 or 6

42G1 Y-SUS BOARD ADJUSTMENT POINTS

Y-DRIVE WAVEFORM TP

P2

TP

P3

P4

P1d0 P100

P204

Y-SUS Drive

VR601
Set-dn Adj

VR602
Ramp Adj

Y-SUS PWB

-VY TP
R210

P5

P6

P200

P211

VSC Adj
VR501

FS202 (VS)
125V 4A

-VY Adj
VR502

VZB Adj
VR905

5V Fuse

FL1

P7

VSC TP
R211

VZB TP
R946

P202

P201

P801

P101

42G1 PANEL
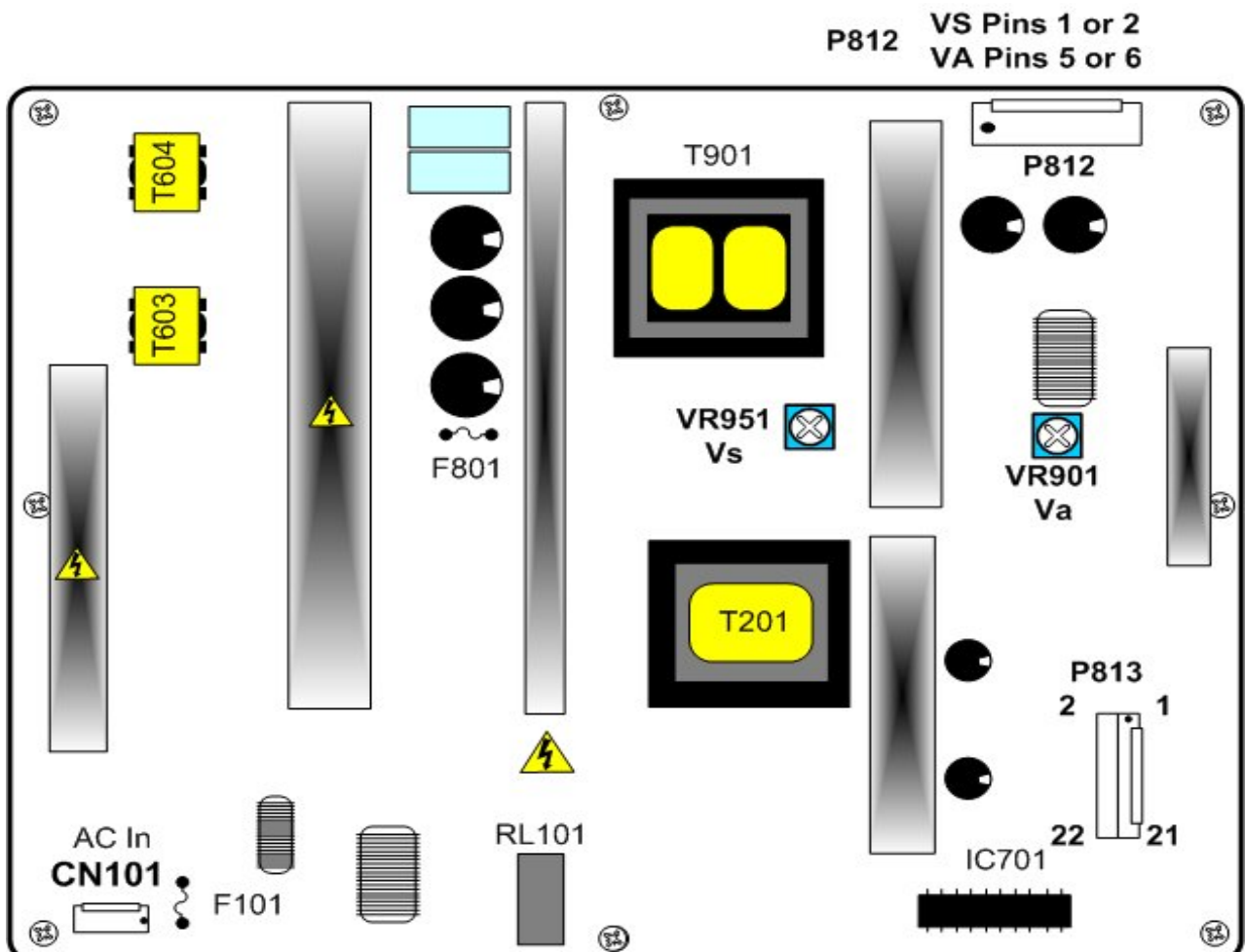
**V SET DOWN set too high
can cause shut down.
If this happens, remove the LVDS cable and
pre-alighn adjustments.**

42G1 Y-SUS ADJUSTMENT PREPARATION:

PREPARATION:

1.) Pre-Heat unit for at least 10
Minutes before making adjustments.
2.) Place unit into White Wash from the Customer's
Menu for all adjustments.
**3.) Be sure to use all adjustment values as
indicated on the panel voltage label in the
upper left hand corner of the panel. (Example above)**

Model : PDP 42G1####
Voltage Setting: 5V / Va:65V / Vs:192V
N.A. / -195 / 135 / N.A. / 100
Max Watt : 330 W (Full White)

-Vy   VSC

PROCEDURE: (See figures for locations)

1) Adjust -Vy using VR501. Measured across **R210**.
Match Panel Voltage label ±1V.

2) Adjust VSC using VR502. Measured across **R211**
Match Panel Voltage label ±1V.
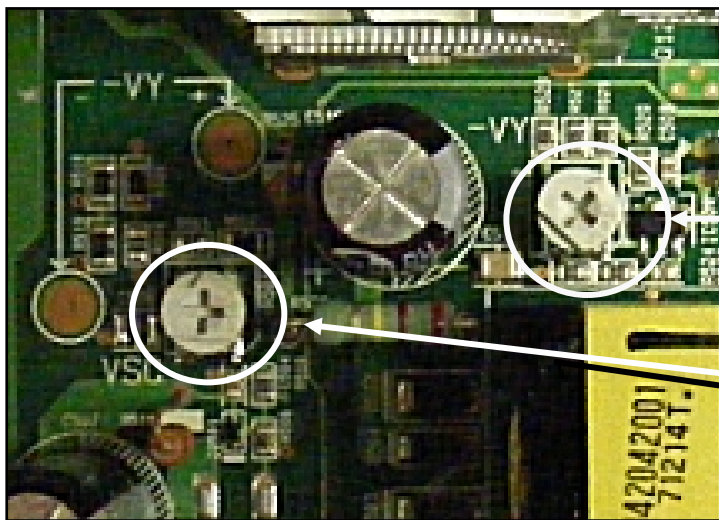
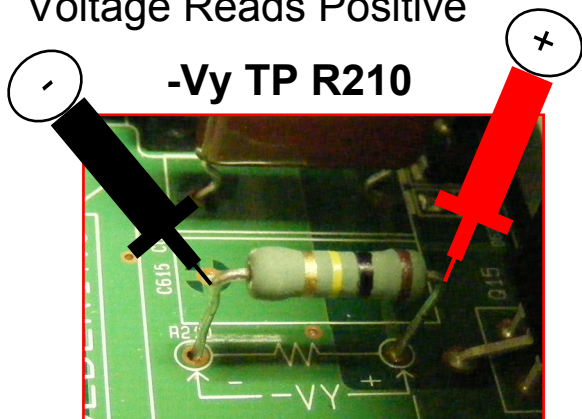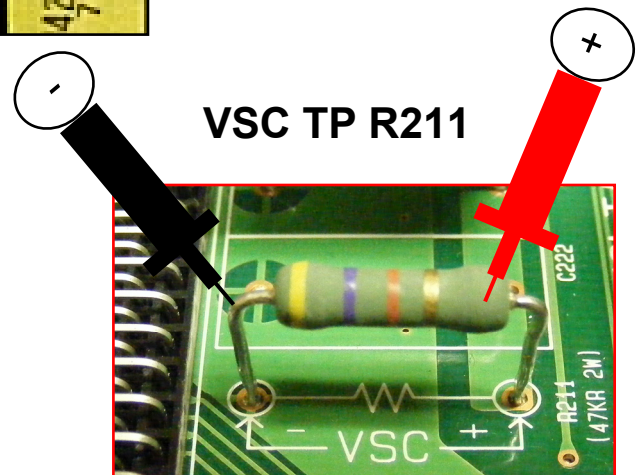|	
Lower Left Side of Board	
VR502	*-Vy Adj*
VR501	*VSC Adj*

Voltage Reads Positive

-Vy TP R210

VSC TP R211

Middle Left Side of Board
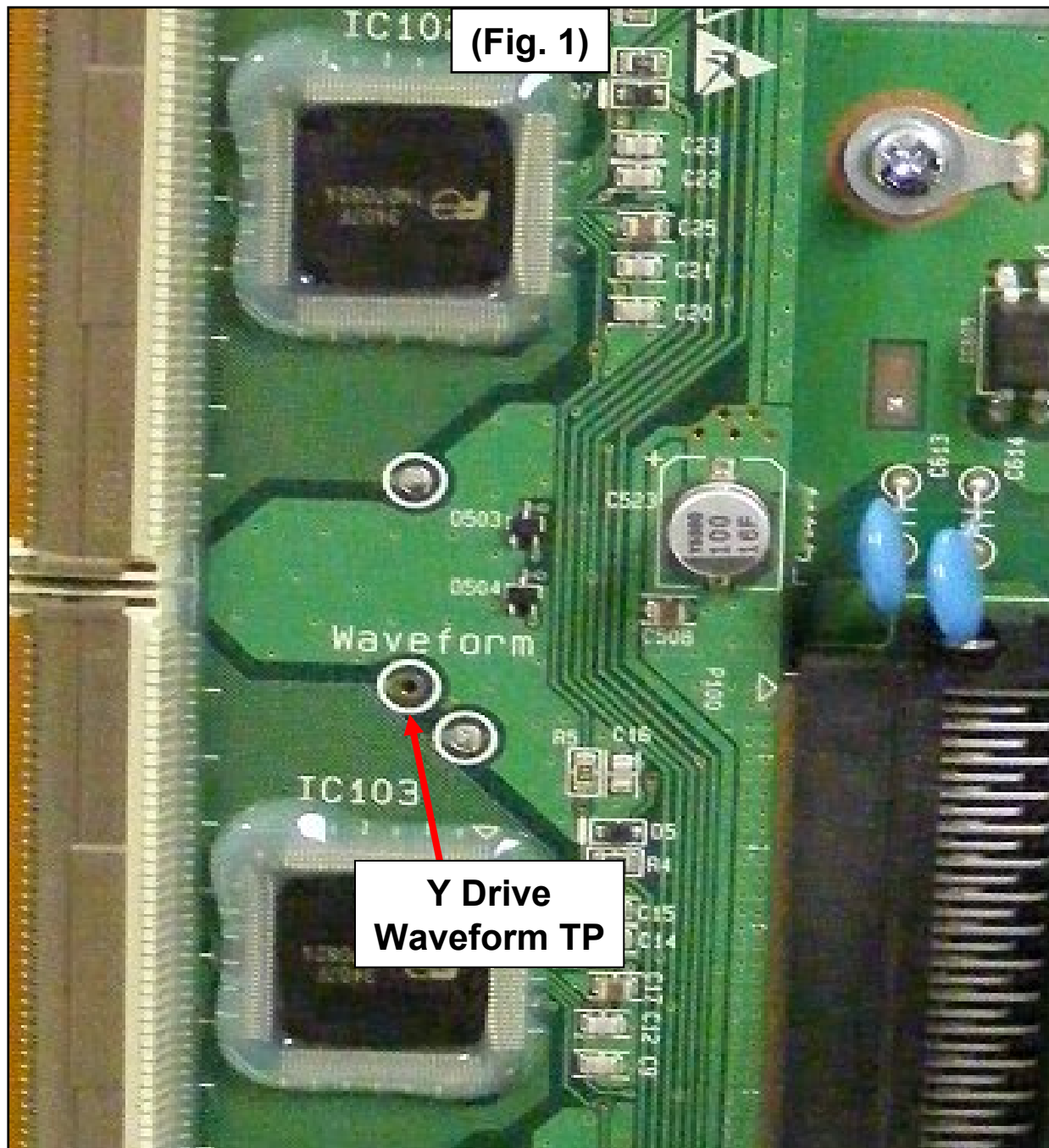
Lower Left Side of Board

42G1 Y-Drive Waveform Test Point

Figure 1 shows the Y-Drive Waveform Test Point on the Center Top Y-Drive PWB. Indicated by the Arrow. Use this TP for alignment of the Y-Drive signal using Set-Up and Set-Down adjustments shown on the next page.
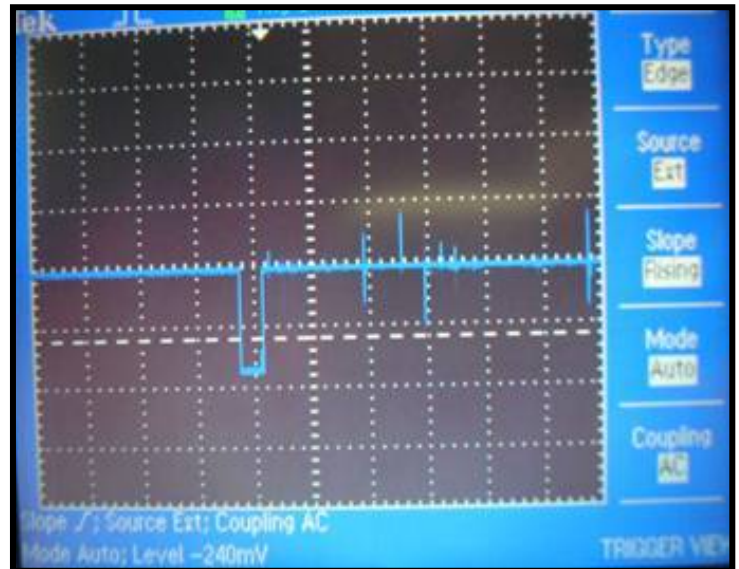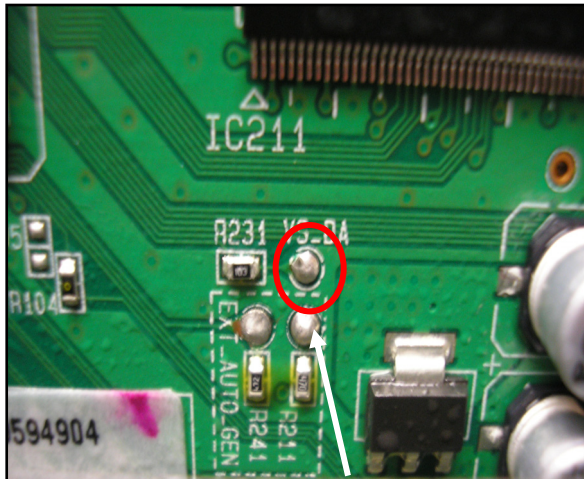

(Fig. 1)

Y Drive
Waveform TP

42G1 PANEL

Top Y-Drive board.

Observing the Y-SUS and Z-SUS Output Waveforms

External Triggering of the Oscilloscope allows for a Stable Display of both the Y and Z SUS Output Waveforms regardless of how distorted the waveforms may be, allowing the wave shape and phasing to be easily examined.

To set the Oscilloscope up for External Trigger first connect a Scope Probe set on direct to the External Input Jack. Next set the External Jack for AC Coupling either positive or negative slope, use the Trigger Menu on the Scope. Finally you will need to set the Trigger Level press the Trigger View and set the level as indicated in the picture below.

Trigger Level Adjust

VS_DA Located on the Control Board just above the AUTO Gen Test Points may be used as an external trigger source for locking the waveform on the Oscilloscope
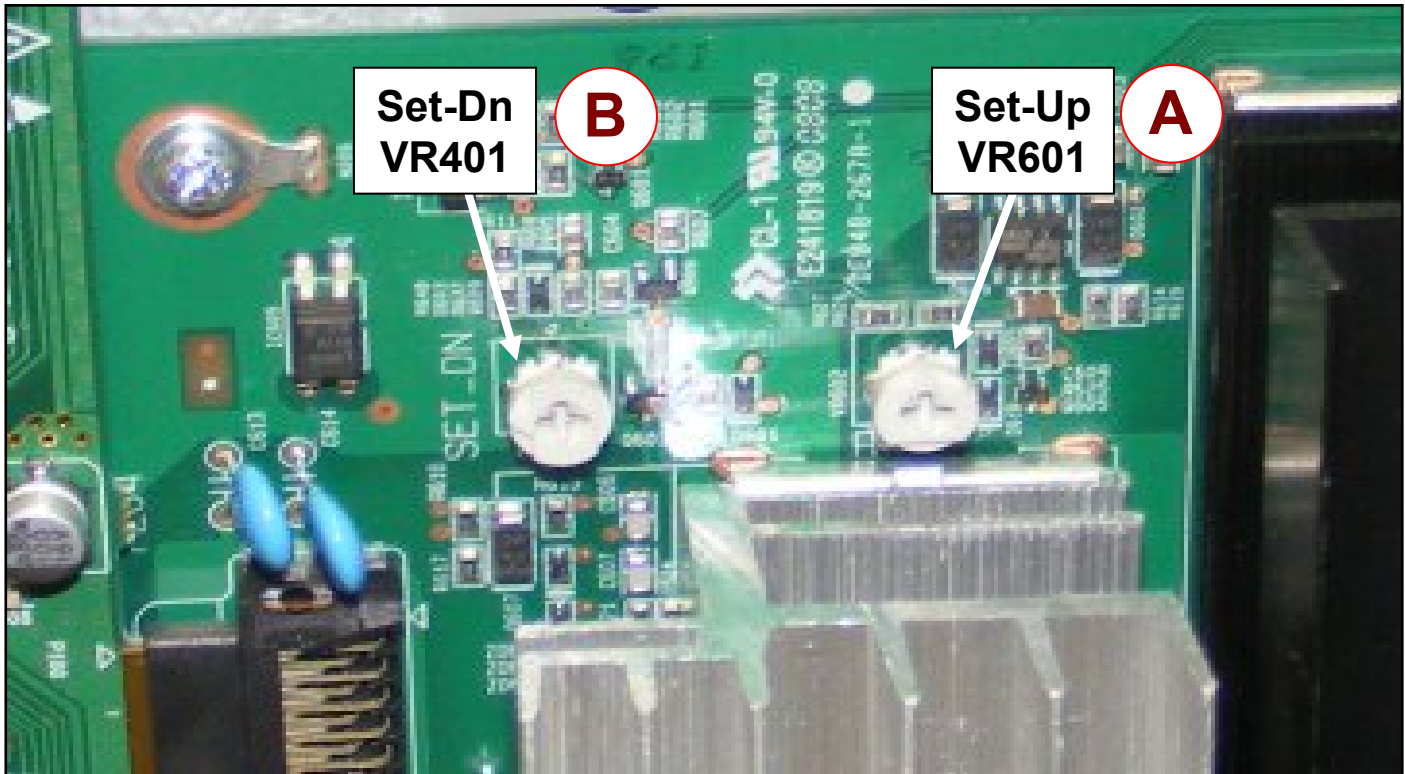
42G1 Y-DRIVE WAVEFORM ADJUSTMENT

PRELIMINARY:

Adjustment locations for adjusting the Y-Drive waveform on the Y-SUS PWB shown below.

See Y-SUS Test Points and Adjustments diagram for detailed locations. (4 pages back).
See next page for Adjustment specifications.

Top Left of PWB

Set-Dn VR401   **B**
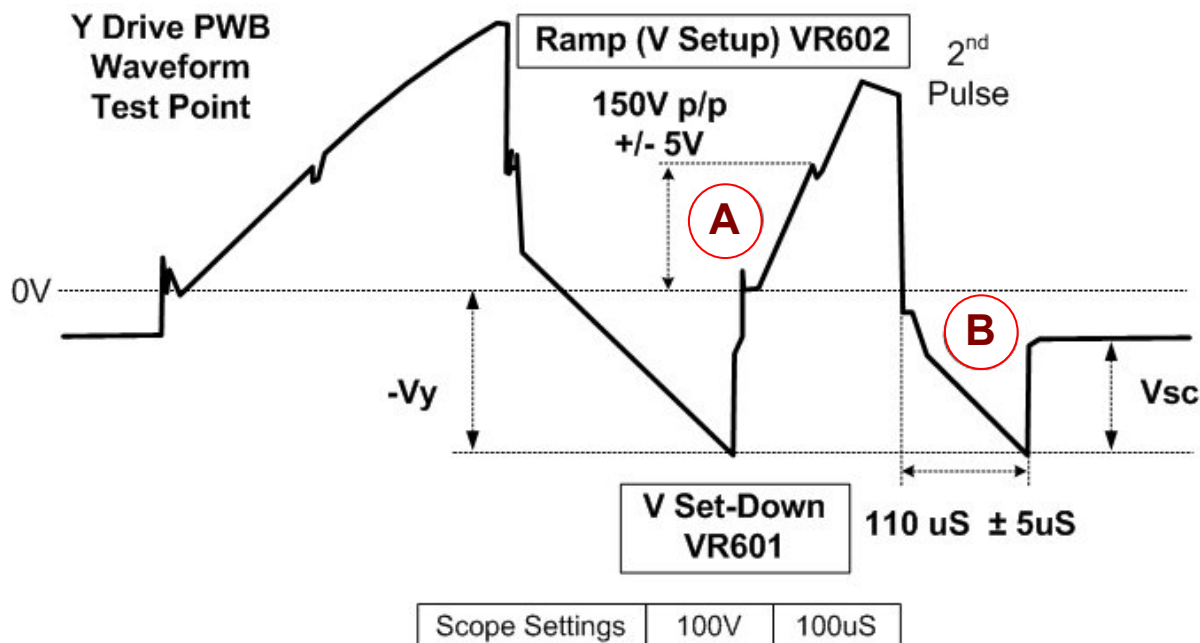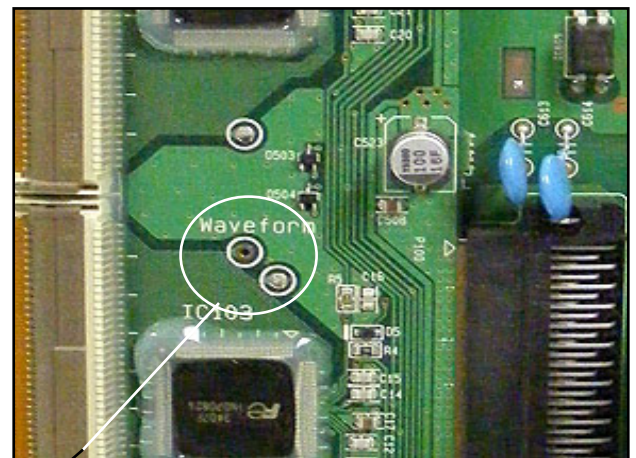
Set-Up VR601   **A**

42G1 PANEL

42G1 Y-SUS ADJUSTMENT PREPARATION:

PREPARATION:

1) All adjustment preliminary preparations should be the same as for Va and Vs adjustments.
2) Va, Vs, -Vy, and VSC adjustments should be complete.
3) **Be sure to use all adjustment values as indicated on the panel voltage label in the upper left hand corner of the panel.**
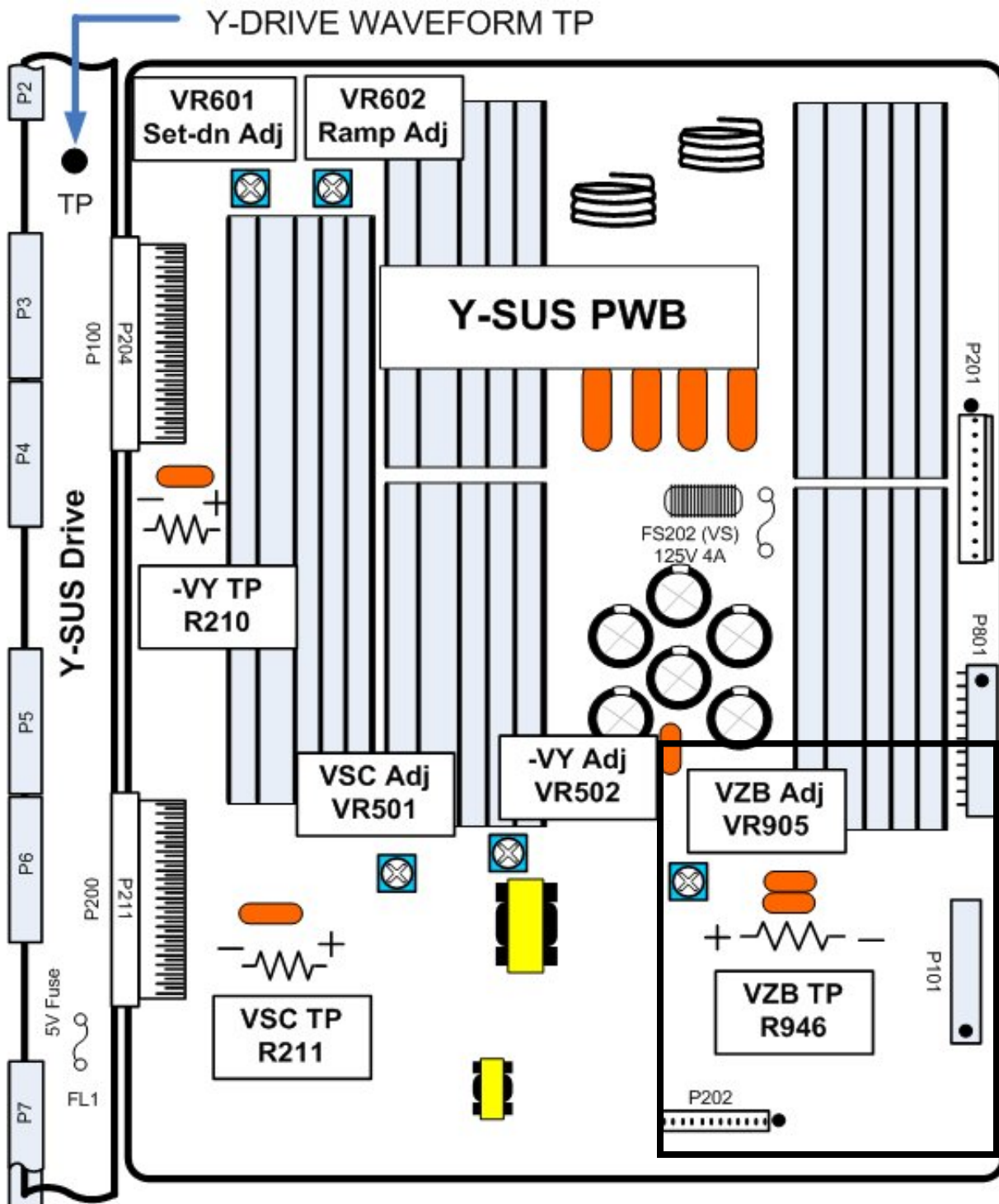
PROCEDURE: (See preceding page for locations)
Connect scope to Waveform TP on Y-Drive PWB.

1) Adjust **RAMP** until point "**A**" in diagram below is **150V p / p ±5V**.

2) Adjust **V SET-DOWN** until point "**B**" in diagram below is **110uSec ±5uS**

Y Drive PWB Waveform Test Point

Ramp (V Setup) VR602   2ⁿᵈ Pulse

150V p/p +/- 5V

A

0V

-Vy

B

Vsc

V Set-Down VR601

110 uS ± 5uS

Scope Settings	100V	100uS

42G1 Y-SUS BOARD Z-SUS ADJUSTMENT POINTS

Y-DRIVE WAVEFORM TP

P2

TP

VR601
Set-dn Adj

VR602
Ramp Adj

Y-SUS PWB

P3

P100

P204

Y-SUS Drive

P4

-VY TP
R210

FS202 (VS)
125V 4A

P201

P801

P5

VSC Adj
VR501

-VY Adj
VR502

VZB Adj
VR905

P6

P200

P211

VSC TP
R211

VZB TP
R946

P101

5V Fuse

FL1

P7

P202

42G1 PANEL

**Z-Bias Adjustment Section of
the Y-SUS PWB**

42G1 Z-SUS ADJUSTMENT PREPARATION:

PREPARATION:

1.) Pre-Heat unit for at least 10
   Minutes before making adjustments.
2.) Place unit into White Wash from the
   Customer's Menu for all adjustments.
3.) All other adjustments should be complete.
4.) Be sure to use all adjustment values as indicated on the panel
   voltage label in the upper left hand corner of the panel.
   (Example above)

Model : PDP 42G1####
Voltage Setting: 5V / Va:65V / Vs:192V
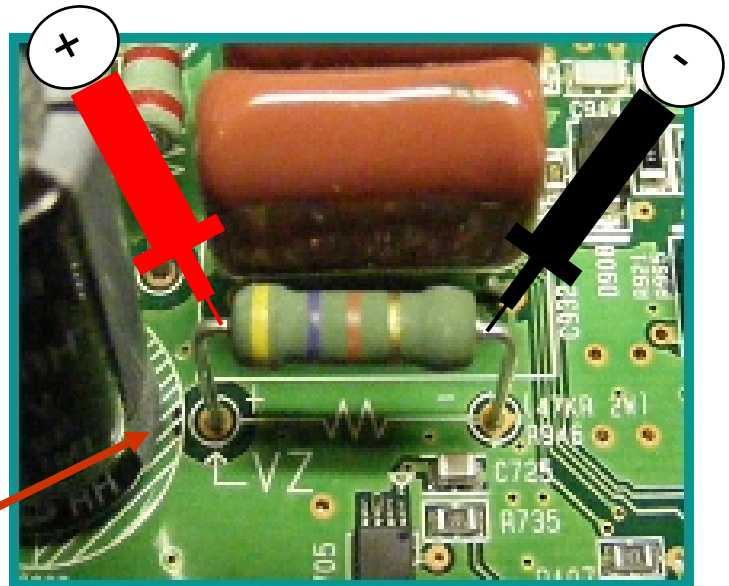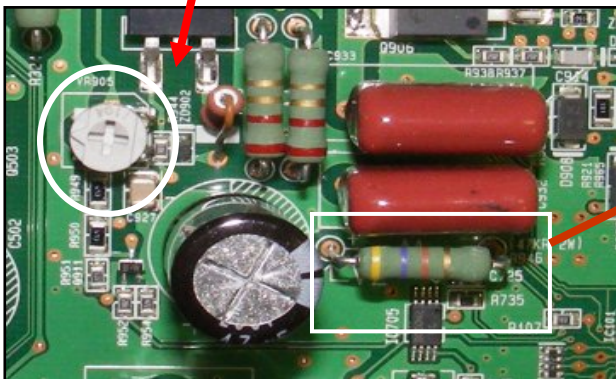N.A. / -195 / 135 / N.A. / 100
Max Watt : 330 W (Full White)

ZBias

PROCEDURE: (See preceding page for locations)

1.) Place DC Volt meter on **VZB TP (Across R946 on the**
   Y-SUS Board).
2.) Adjust **VZB (Z Bias) VR905** in accordance to your Panel's
   voltage label.

Z-Bias Adj
VR905

Z-Bias TP
R946

Bottom right side of Y-SUS PWB

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42G2 PLASMA PANEL

QUICK REFERENCE

ALIGNMENT HAND BOOK

MODELS USING THE 42G2 PANEL

42PQ20
42PQ30

LG

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42G2 SMPS BOARD ADJUSTMENT POINTS

These two voltages are adjustable and should be adjusted to the correct values as indicated by the panel label.
Example shown in the outlined area below.
Always adjust "Highest to Lowest" voltages.
VS and VA adjustment resistors are shown in the drawing below.
They are located towards the top right hand side of the board.
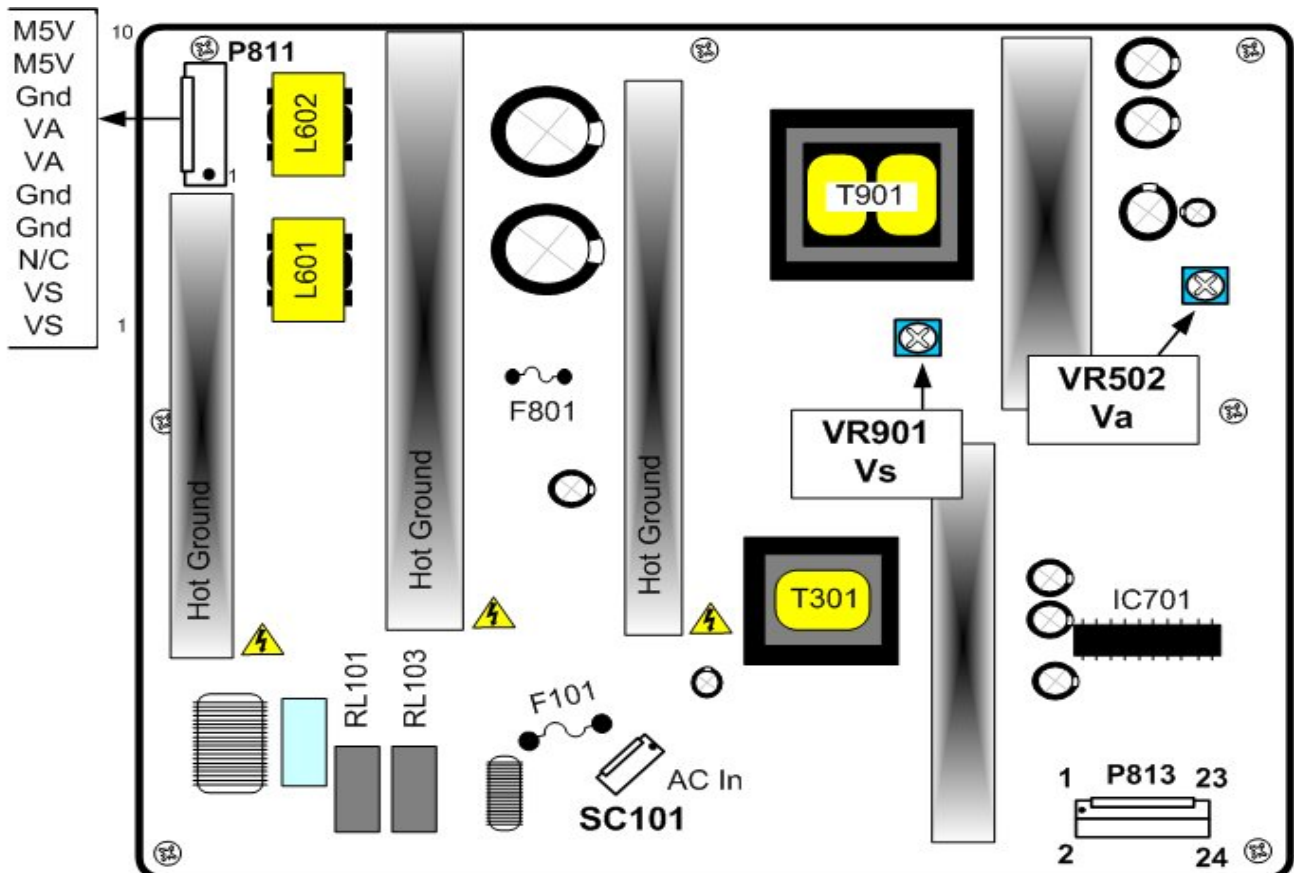VR901 is the VS adjustment pot.
VR502 is the VA adjustment pot.
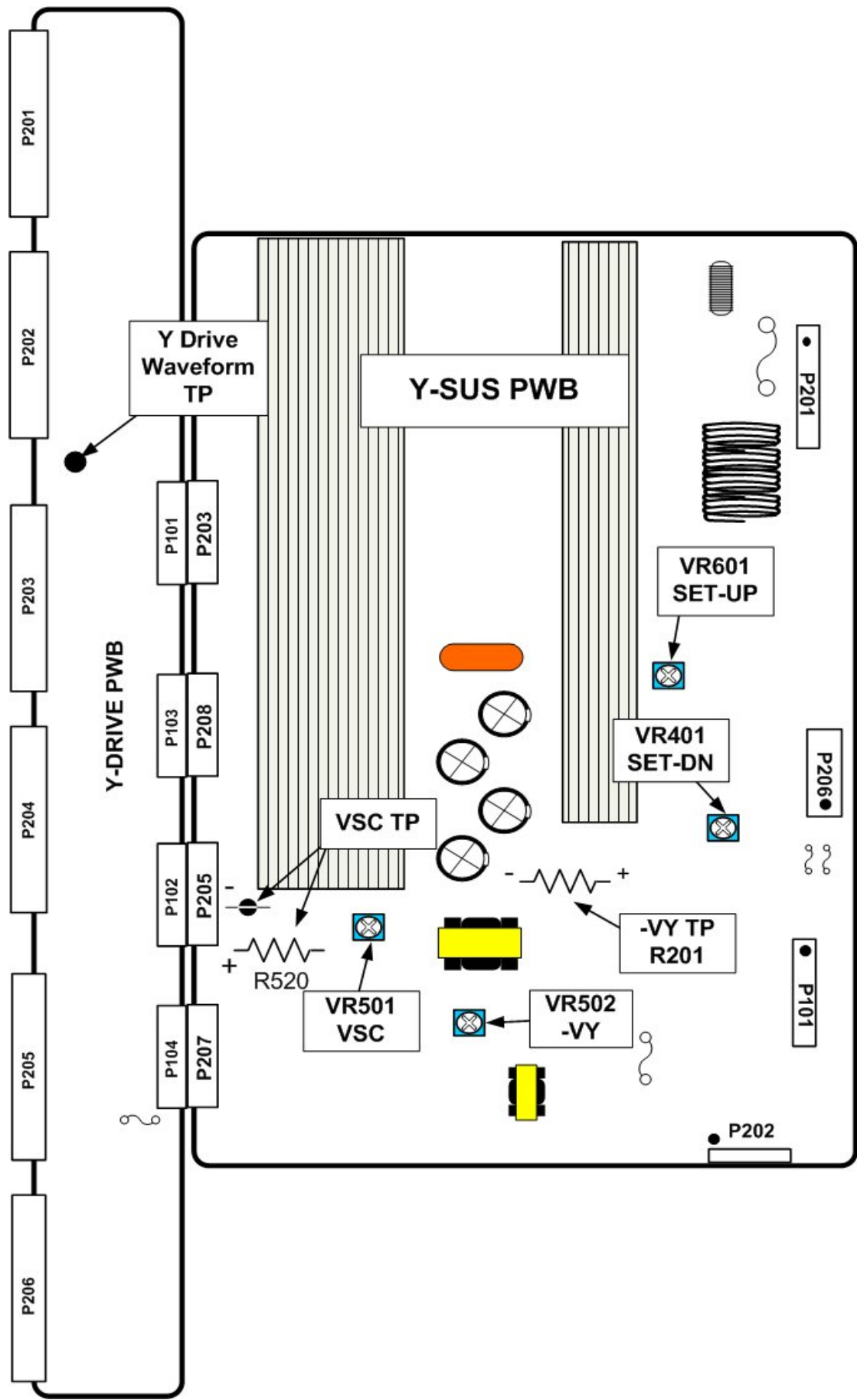
Set should be in "Full White Raster"

1) **VS ADJUST:** Connect DVM to pin 1 or 2 of P811. Adjust **VR901** until the voltage matches the panel's voltage label.

2) **VA ADJUST:** Connect DVM to pin 9 or 10 of P811. Adjust **VR502** until the voltage matches the panel's voltage label.

All measurements taken from Chassis Gnd.

42G2 Y-SUS BOARD ADJUSTMENT POINTS

P201

P202

P203

P204

P205

P206

Y-DRIVE PWB

P101
P203

P103
P208

P102
P205

P104
P207

Y Drive
Waveform
TP

Y-SUS PWB

VR601
SET-UP

VR401
SET-DN

VSC TP

VR501
VSC

R520

VR502
-VY

-VY TP
R201

P201

P206●

P101

P202

42G2 PANEL

VSC and –Vy Voltage Adjustment Locations

These voltages are adjustable and Should be adjusted to the correct values as indicated by the panel's voltage label.
Example shown to the right.

Model : PDP 42G2####
Voltage Setting:5V / Va:60V / Vs:194V
N.A. / -175 / 140 / N.A. / 80
Max Watt : 330 W (Full White)

-Vy   VSC

-Vy (VR502) variable resistor located bottom center of the board.

Adjust the -Vy (VR502) while reading across **R201**.
Match your specific panel's voltage label.

**VSC (VR501)** variable resistor located bottom center of the board.

Adjust the VSC (VR501) while reading between left side **R520** and TP just above **R520**. Match your specific panel's voltage label.

VSC TP
Measure
Across TPs

EBJ59992201
DK 81015A

-Vy TP
Across
VR201

VSC
VR501

-VY
VR502
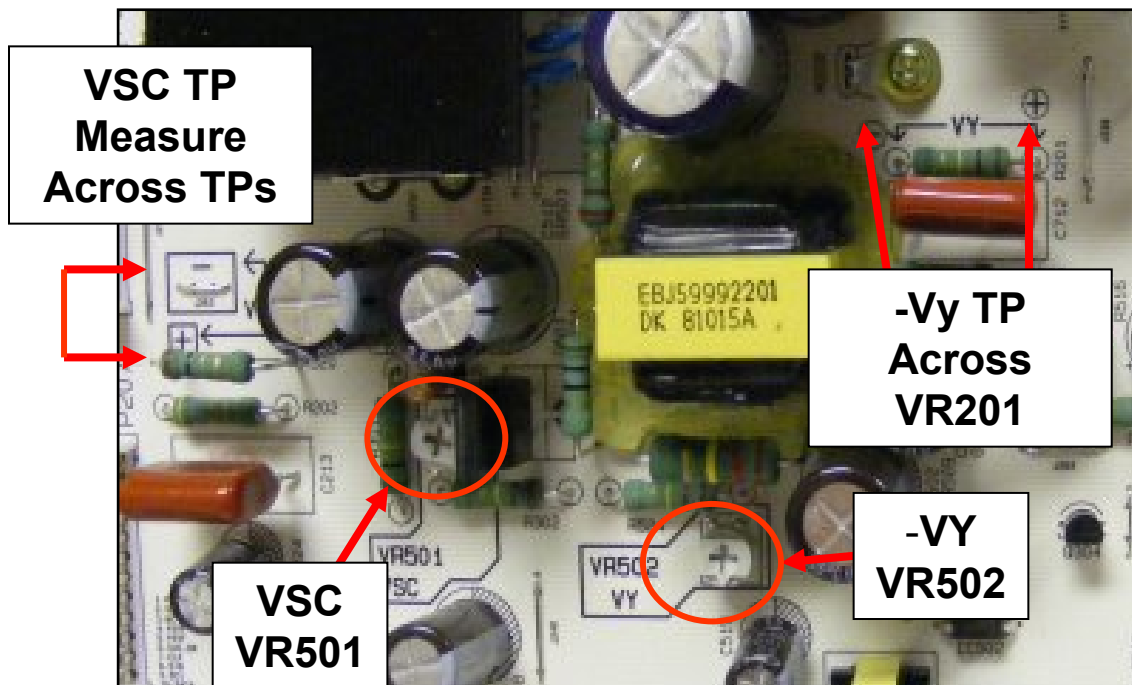
42G2 Y-Drive Waveform Test Point

Figure 1 shows the Y-Drive PWB with the area of the Waveform TP outlined in the Red circle.

Use this TP for alignment of the Y-Drive signal using Set-Up and Set-Down adjustments shown on the next page.
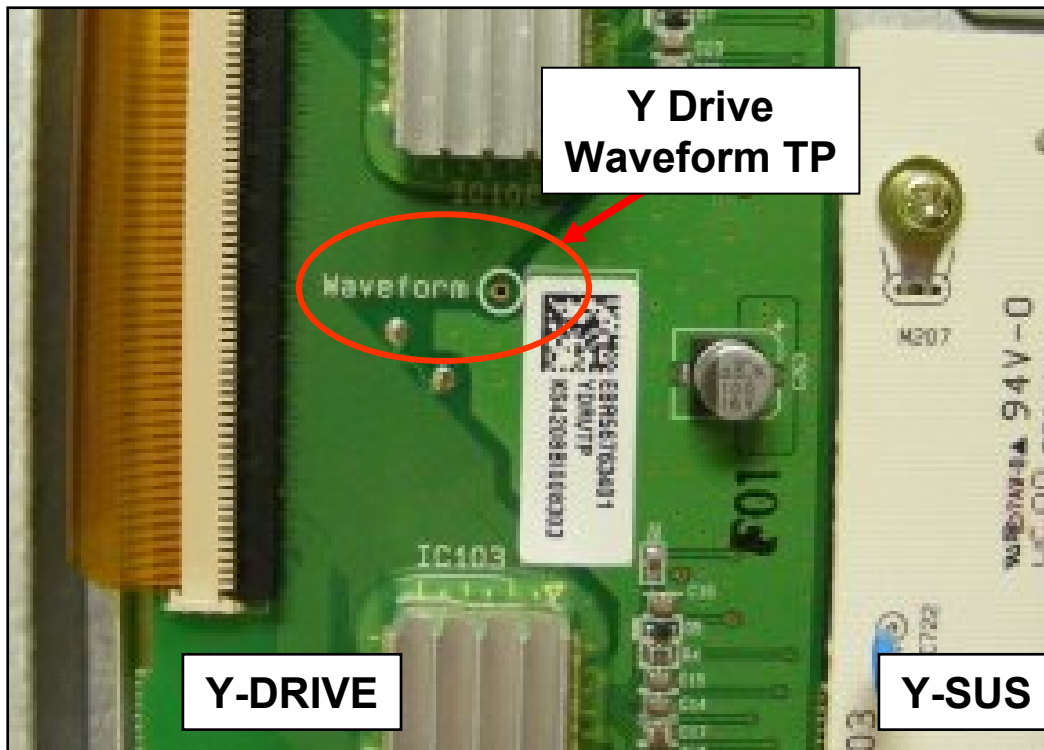
(Fig. 1)

42G2 Y-DRIVE WAVEFORM ADJUSTMENT

VS, VA, VSC, -Vy should have been completed.

Using a Full White Raster, adjust the Set-up and Set-dn section of the Y-Drive waveform.

See Y-SUS Test Points and Adjustments diagram for locations.

Oscilloscope TP "Waveform" TP on the Y-Drive PWB.

(A) Set-Up: Adjust **VR601** while observing area (A) and set to **160V ± 1V**.

(B) Set-Down: Adjust **VR401** while observing area (B) and set to **185uSec ± 5uSec**.

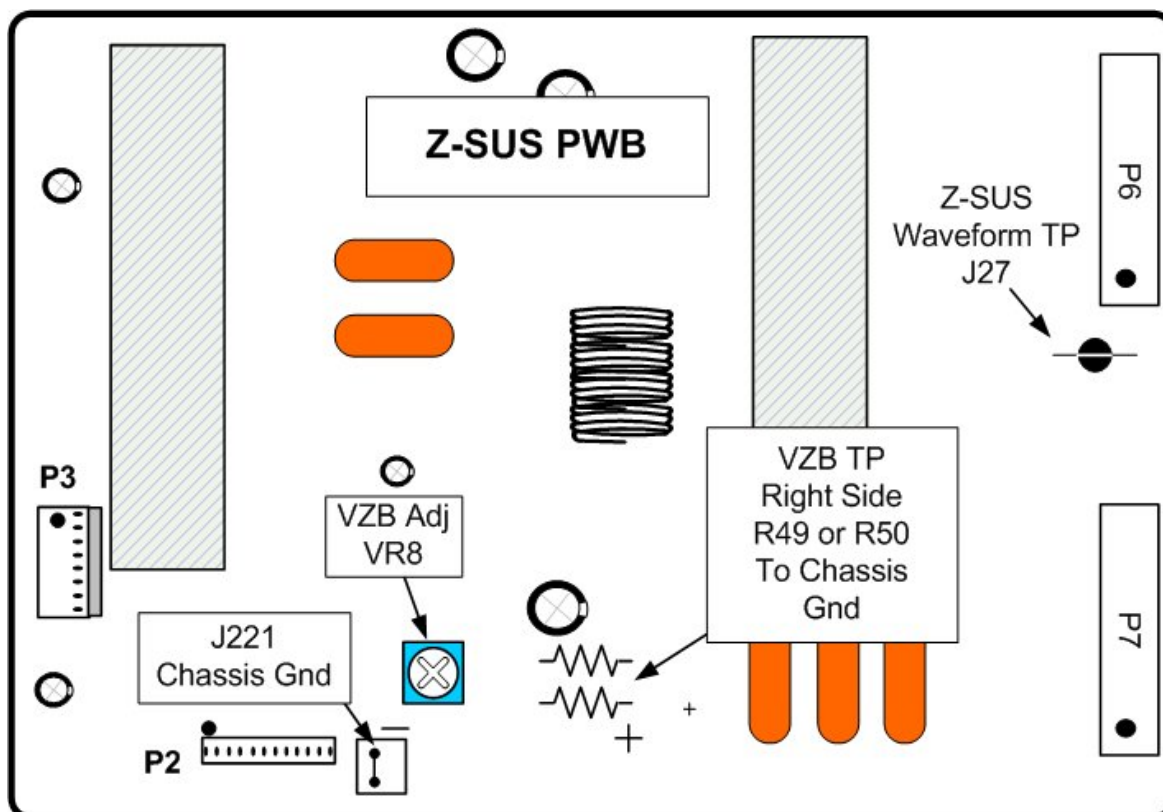| Waveform TP on the Y-Drive PWB			
50VAC rms	100V	100uS	528V p/p
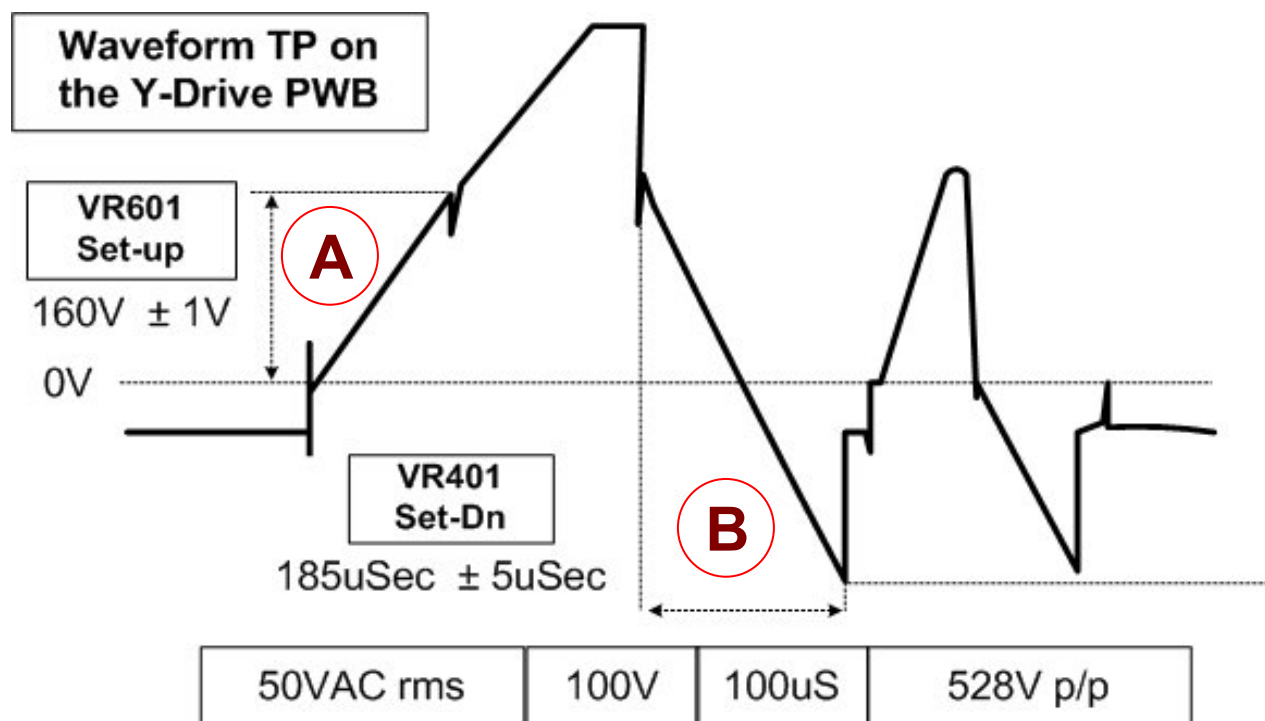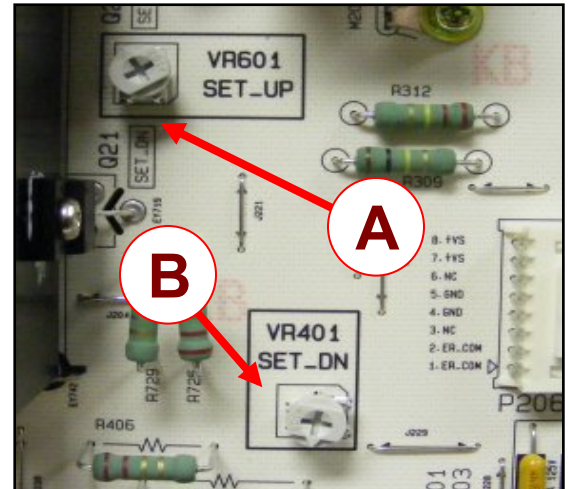
42G2 Z-SUS BOARD ADJUSTMENT POINTS

Model : PDP 42G2####
Voltage Setting:5V / Va:60V / Vs:194V
N.A. / -175 / 140 / N.A. / 80
Max Watt : 330 W (Full White)

Z Bias

The above picture represents a 42G2 Panel Voltage Label. This is for an example only. You should adjust your set's
Z-Bias adjustment to your specific Panel's Voltage Label not this book.

The picture below represents the 42G2 Z-SUS PWB. Use this for reference to locate the Adjustment control and the adjustment Test Points.

Z-SUS PWB

P6

Z-SUS
Waveform TP
J27

VZB TP
Right Side
R49 or R50
To Chassis
Gnd

P3

VZB Adj
VR8

J221
Chassis Gnd

P2

P7

42G2 Z-SUS BOARD ADJUSTMENT POINTS

VS, VA, VSC, -Vy should have been completed.

Model : PDP 42G2####
Voltage Setting:5V / Va:60V / Vs:194V
N.A. / -175 / 140 / N.A. / 80
Max Watt : 330 W (Full White)

Z Bias

Full White Raster

1) Z-Bias TP: Connect DVM (+) right side **R49 or R50** to Chassis Gnd.

2) Adjust **Z-Bias (VR8)** to match your specific panel's voltage label.

Z Bias Test Point
Right Side of either R49 or 50
To Chassis Ground

Z Bias Adjust
VR8

Same as Chassis Gnd.
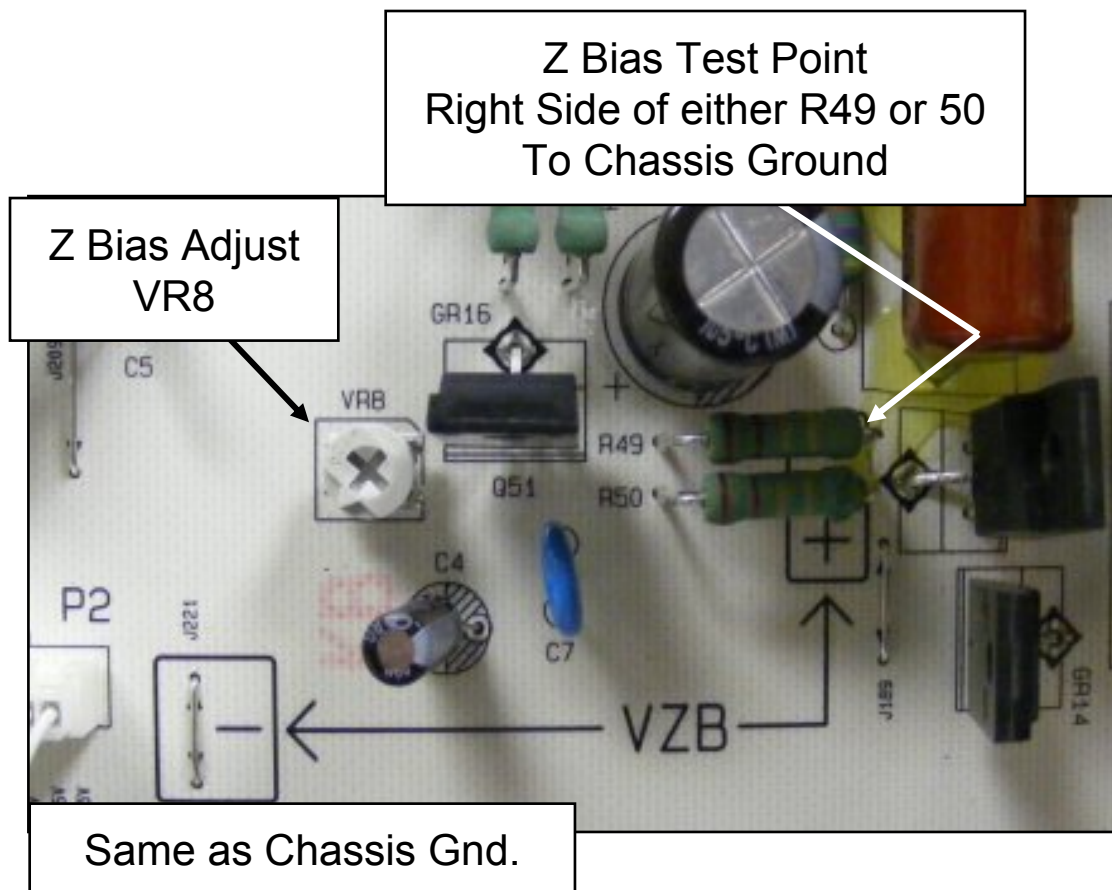
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42T1 PANEL

QUICK REFERENCE

ALIGNMENT HAND BOOK

THE FOLLOWING MODELS USE THE 42T1 PANEL

42PJ350

LG

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42T1 SMPS BOARD ADJUSTMENT POINTS

Set should be in "White Wash"

These two voltages are adjustable and should be adjusted to the correct values as indicated by your Panel's Voltage Label. Example shown on the right.

Example: Use Your Panel's Label

Model : PDP 42T1###
Voltage Setting: 5V/ Va:60 / Vs:205
N.A. / -195 / 145 / N.A. / 110
Max Watt : 250 W (Full White)

VA   VS
VR502   VR901

Always adjust "Highest to Lowest" voltages.
VS and VA adjustment resistors are shown in the drawing below.
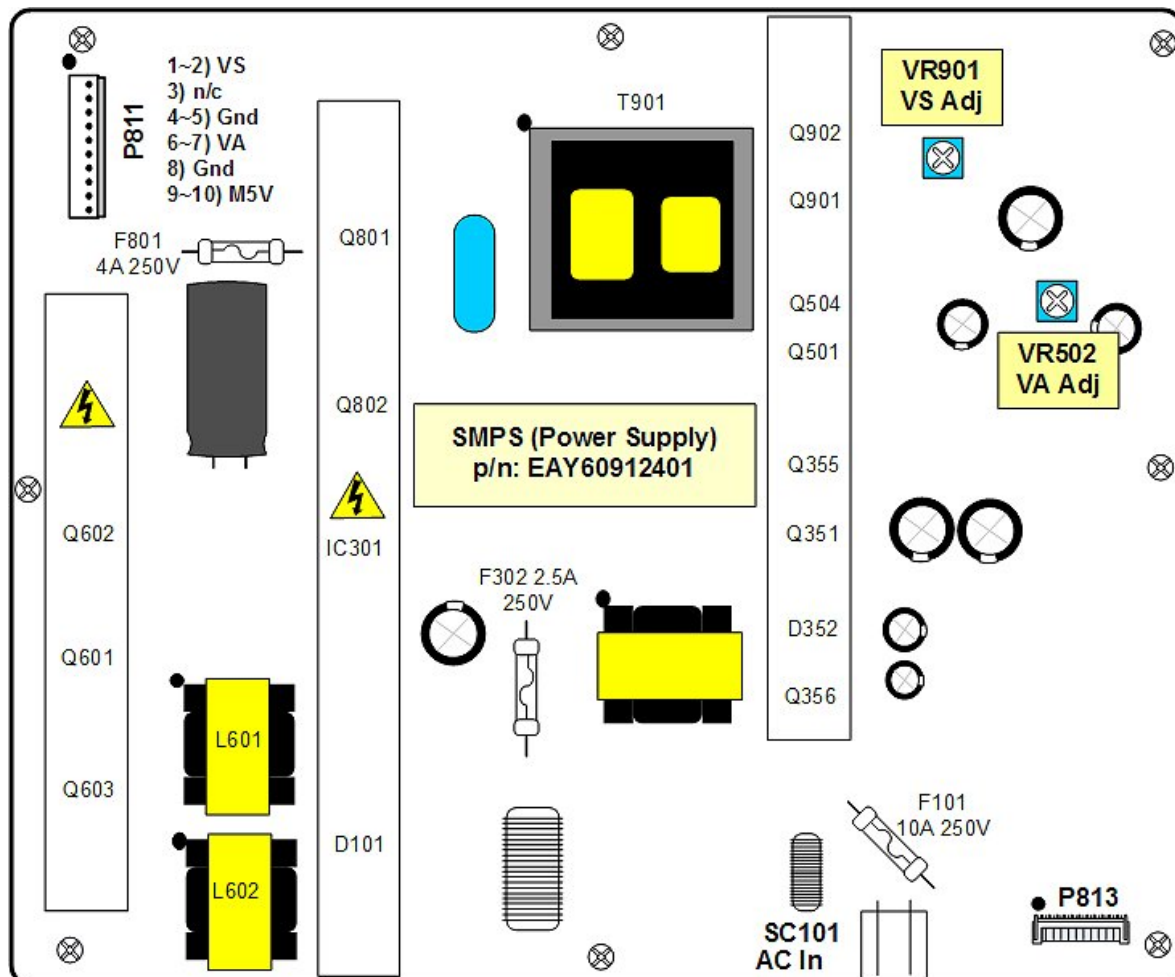They are located at the top Right of the board.

1) **VS ADJUST:**
   Connect DVM to VS Test Point or pins 1 or 2 of P811.
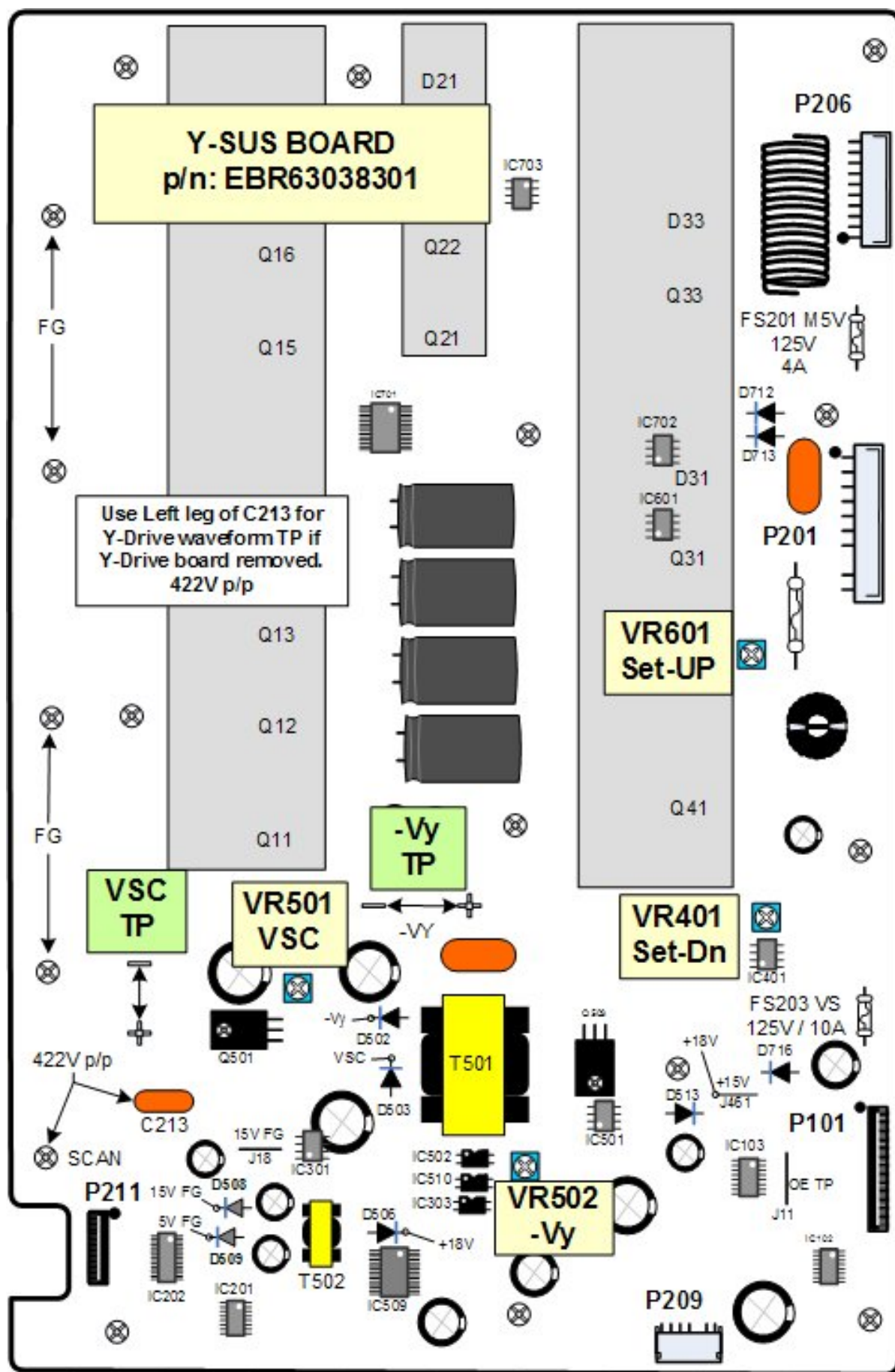   Adjust VR901 until the voltage matches your panel's voltage label.

2) **VA ADJUST:**
   Connect DVM to VA Test Point or pins 6 or 7 of P811.
   Adjust VR502 until the voltage matches your panel's voltage label.

P811

1~2) VS
3) n/c
4~5) Gnd
6~7) VA
8) Gnd
9~10) M5V

F801
4A 250V

Q801

Q802

IC301

Q602

Q601

Q603

L601

L602

D101

T901

F302 2.5A
250V

SMPS (Power Supply)
p/n: EAY60912401

F101
10A 250V

SC101
AC In

Q902

Q901

Q504

Q501

Q355

Q351

D352

Q356

VR901
VS Adj

VR502
VA Adj

P813

42T1 Y-SUS BOARD ADJUSTMENT POINTS

Y-SUS BOARD
p/n: EBR63038301

D21

IC703

Q16

Q22

FG

Q15

Q21

IC701

Use Left leg of C213 for
Y-Drive waveform TP if
Y-Drive board removed.
422V p/p

Q13

Q12

FG

Q11

VSC
TP

VR501
VSC

-Vy
TP

-VY

422V p/p

Q501

-Vy

D502

VSC

D503

C213

T501

SCAN

15V FG
J18

IC301

P211

15V FG   D508

5V FG

D509

IC202   IC201

T502

D506

+18V

IC509

P206

D33

Q33

FS201 M5V
125V
4A

D712

IC702

D713

D31

IC601

P201

Q31

VR601
Set-UP

Q41

VR401
Set-Dn

IC401

FS203 VS
125V / 10A

+18V   D716

D513   +15V
J461

IC501

IC103

P101

OE TP

J11

VR502
-Vy

IC102

P209

42T1 PANEL

42T1 VSC, -Vy ADJUSTMENTS

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes
   before making adjustments.
   Vs and Va adjustments complete.
2) Place unit into White Wash from the
   Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as
   indicated on your panel's voltage label in
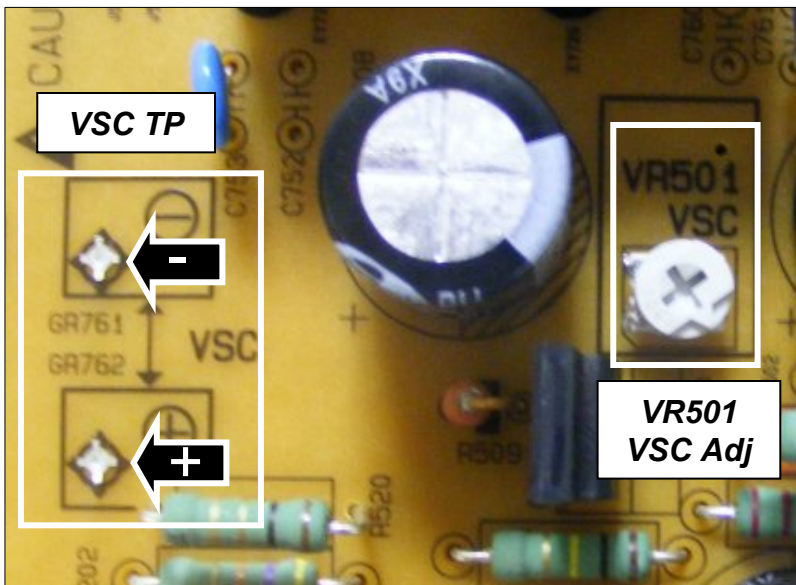   the upper left of the panel.**

PROCEDURE: (See figure below for locations).
   **(See previous page for Location details)**

1) **Adjust –Vy VR502**. Measured across –Vy TPs.
   Match your specific Panel's Voltage label ±1V.

2) **Adjust VSC VR501**. Measured across VSC TPs.
   Match your specific Panel's Voltage label ±1V.

Example: Use Your Panel's Label

Model : PDP 42T1###
Voltage Setting: 5V/ Va:60/ Vs:205
N.A. / -195 / 145 / N.A. / 110
Max Watt : 250 W (Full White)

-Vy   VSC

42T1 PANEL

*Location: Bottom Left of board
Just below Heat Sink*

Voltages Reads Positive

VSC TP

VR501
VSC

*VR501
VSC Adj*

Voltages Reads Positive

-Vy TP

*VR502
-Vy Adj*
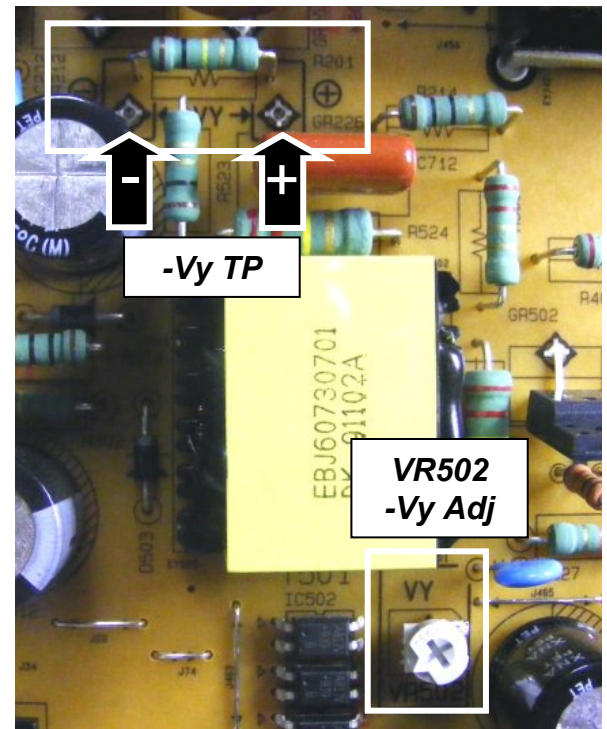
*Location: Bottom Center of board
Just below T501 Transformer*
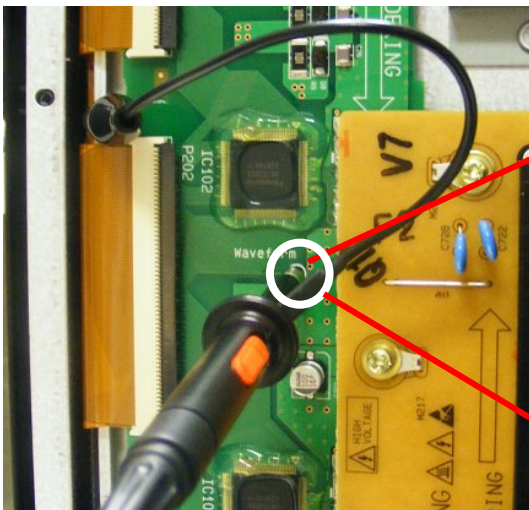
42T1 Y Drive Waveform Test Point

The figure below shows a close-up image of the Y-Drive waveform test point on the Y-Drive Upper board. (Waveform TP).
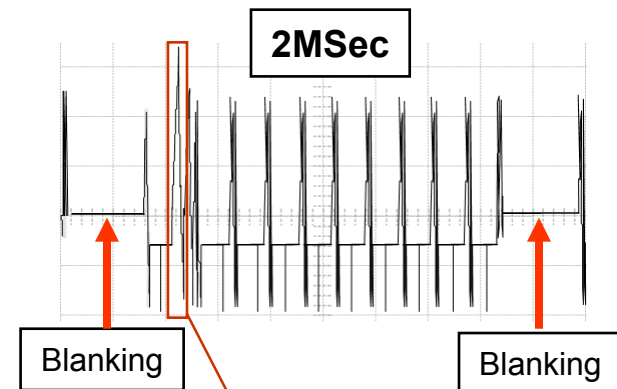There is another on the Lower Y-Drive board.

Set-Up and Set-Down portions of the waveform are adjusted using either of these Test Points.

TP LOCATION UNDER 2nd BUFFER OF Y-DRIVE
(See next page for adjustment Details)
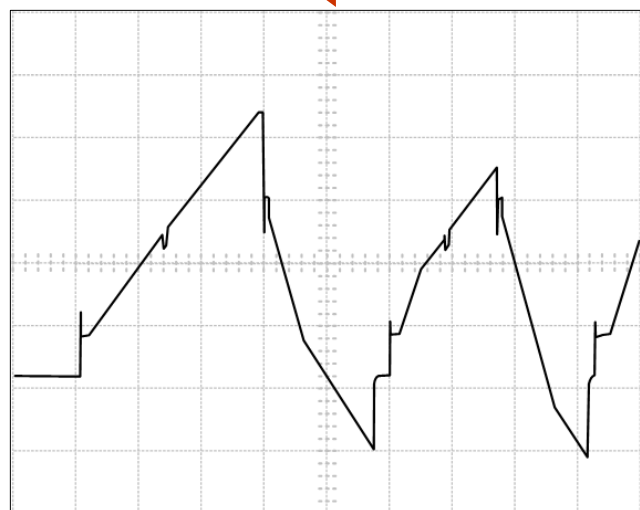
Waveform TP

2MSec

Blanking

Blanking

Upper Y-Drive Board
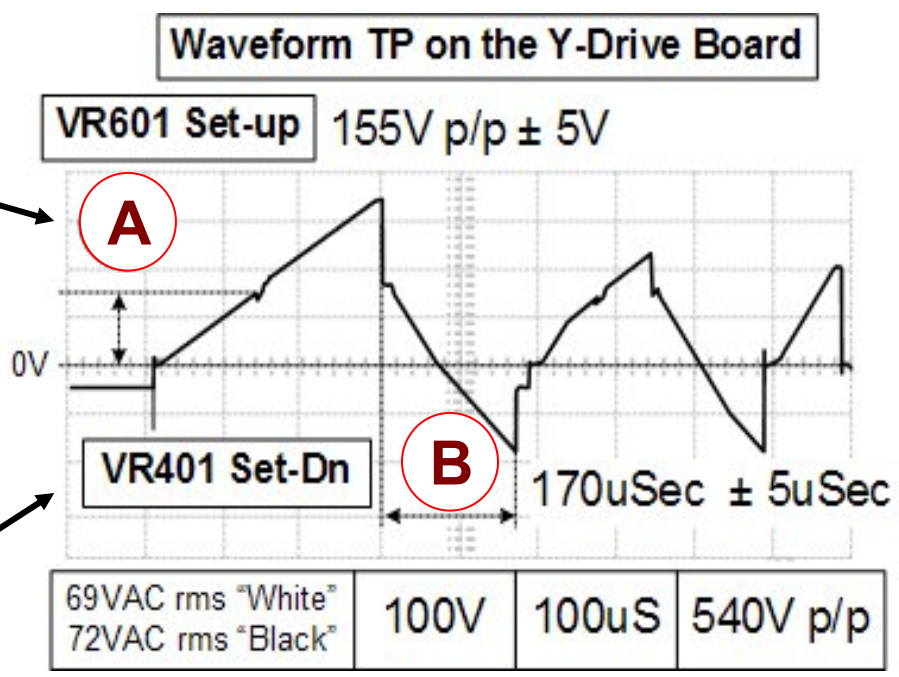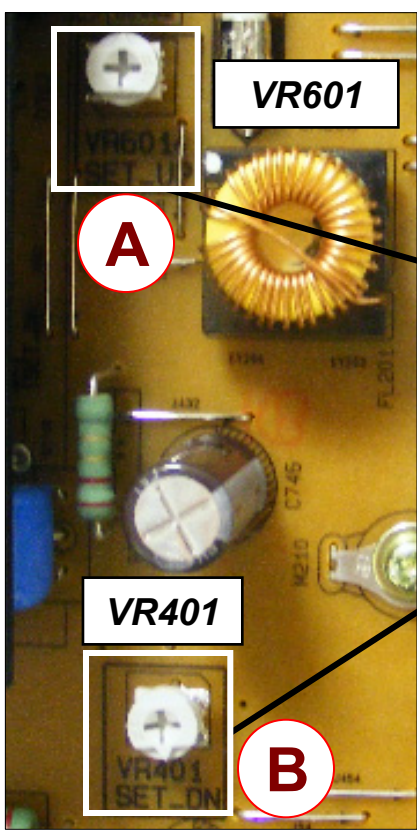
69~72 VRms

540V p/p

100uSec

42T1 Y-DRIVE WAVEFORM ADJUSTMENTS

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
   Vs, Va, -Vy and VSC adjustments should be completed.
2) Place unit into **White Wash** from the Customer's Menu for all adjustments.

See figure below for adjustment locations.

ADJUSTMENT LOCATIONS
(See 3 pages back for Waveform TP locations)

Waveform TP on the Y-Drive Board			
VR601 Set-up	155V p/p ± 5V		

69VAC rms "White" 72VAC rms "Black"	100V	100uS	540V p/p

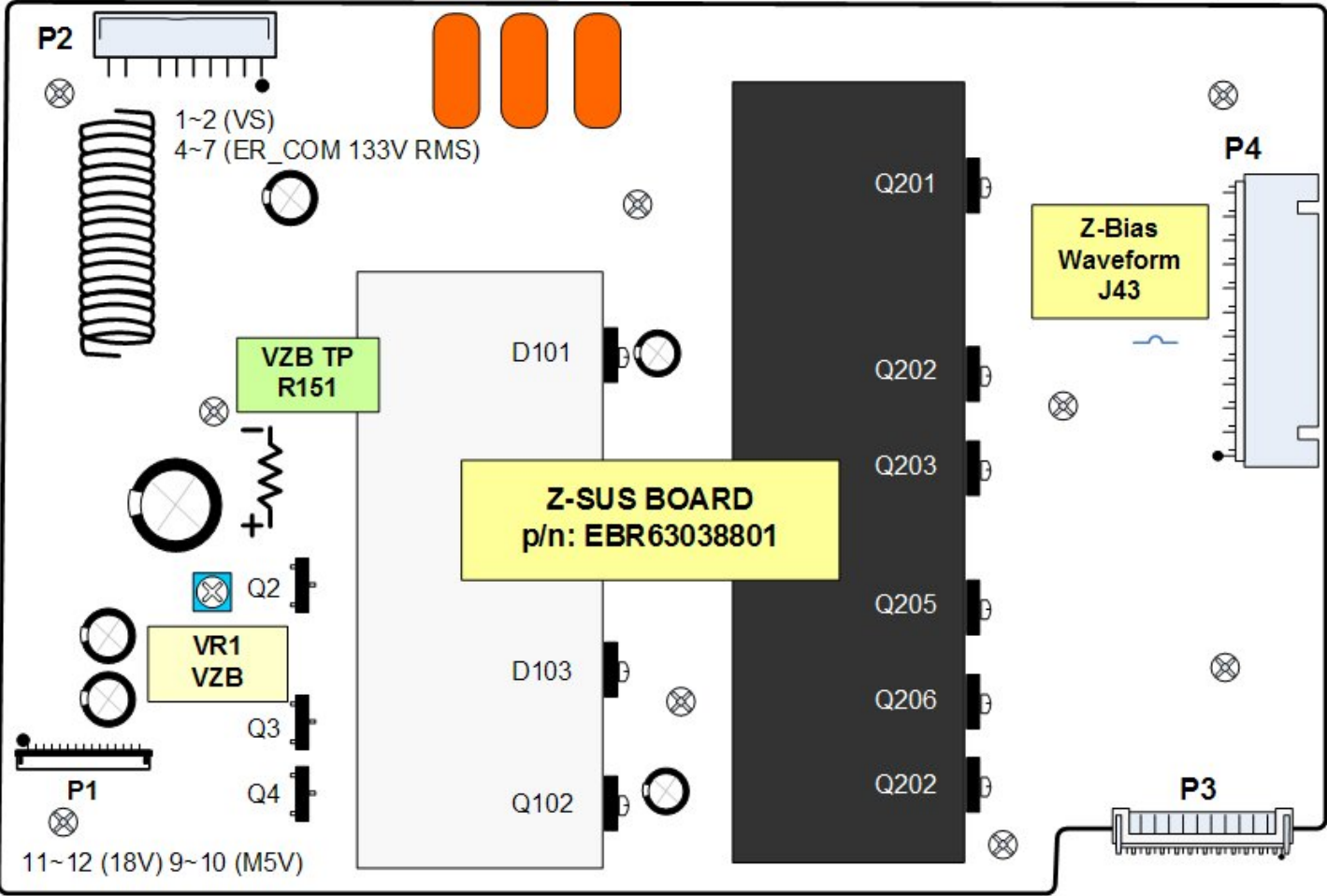**42T1 PANEL**

ADJUSTMENT LOCATION:
Center Right of the board.

SET-UP ADJUST:
1) Adjust VR601 and set the (A) portion of the signal to match the
   waveform above. (155V p/p ± 5V)

SET-DN ADJUST:
2) Adjust VR401 and set the (B) time of the signal to match the waveform
   above. (170uSec ± 5uSec)

42T1 Z-SUS ADJUSTMENT POINTS

P2

1~2 (VS)
4~7 (ER_COM 133V RMS)

VZB TP R151

D101

Z-SUS BOARD p/n: EBR63038801

Q2

VR1 VZB

Q3

Q4

D103

Q102

P1

11~12 (18V) 9~10 (M5V)

Q201

Q202

Q203

Q205

Q206

Q202

P4

Z-Bias Waveform J43

P3

42T1 PANEL

42T1 Z-SUS (Z-Bias) ADJUSTMENT:

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.

2) Place unit into White Wash from the Customer's Menu for all adjustments.

3) Be sure to use all adjustment values as indicated on the panel voltage label in the upper left hand corner of the panel.

Example: Use Your Panel's Label

Model : PDP 42T1###
Voltage Setting: 5V/ Va:60/ Vs:205
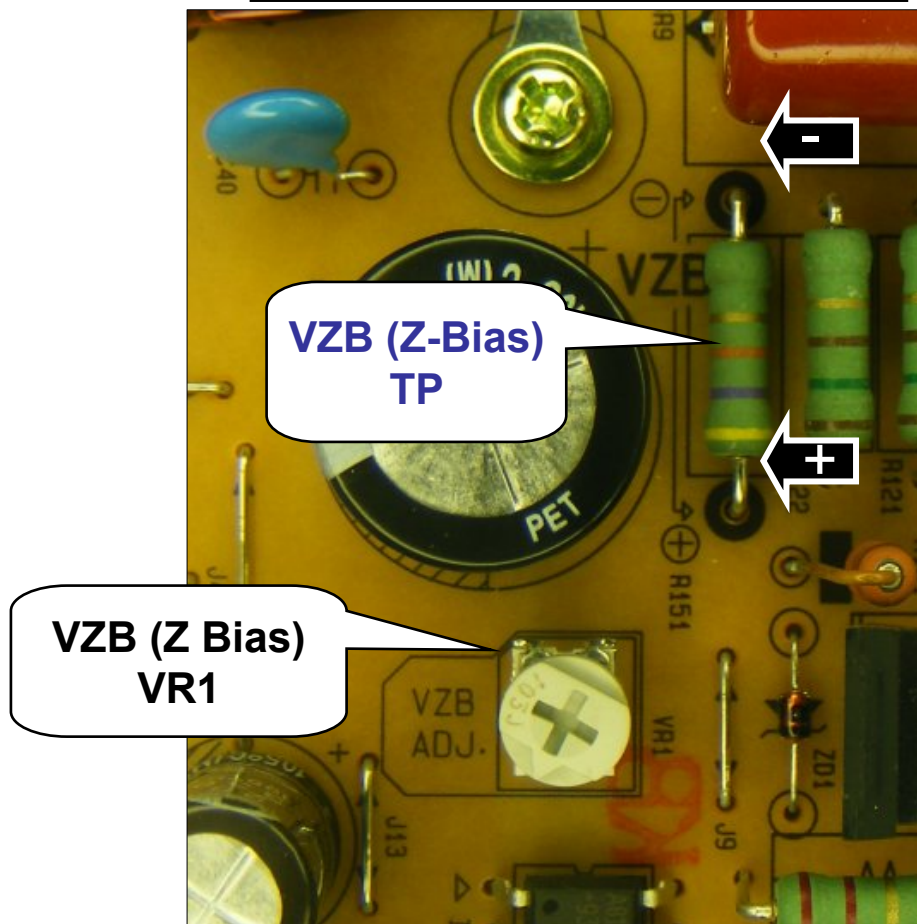N.A. / -195 / 145 / N.A. / 110
Max Watt : 250 W (Full White)

Vzb
VZB (Z Bias)

PROCEDURE: (See preceding page for locations)

1. **Place DC Volt meter between VZB TPs.**
2. **Adjust VZB (Z Bias) VR1 in accordance with your Panel's voltage label.**

**Location
Bottom Left of Z-SUS Board**

VZB (Z-Bias) TP

VZB (Z Bias) VR1

42T1 PANEL

42V7 PLASMA PANEL

QUICK REFERENCE

ALIGNMENT HAND BOOK

MODELS USING THE 42V7 PANEL

42PC3DVUD
42PM2DS / 2DW
42PM3MVATA / MVHMC / MVMC / MVTA / MVZA
42PM3RV / RV1NC / RVA / RVANC / RVNC / RVS / RVW
42PX3DV / DVA / DVANC / DVAW /
42PX3DVB / DVBNC / DVBW
42PX3DVNC / DVW
42PX3RVMC / RVZA
42PX4DVAZC / DVEA / DW
42PX4MVHTA
42PX4RVHTA / RVMC / RVTA / RVZA

![LG Life's Good logo]

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42V7 SMPS BOARD ADJUSTMENT POINTS
Part Number: 6709V00003A

These two voltages are adjustable and should be adjusted to the correct values as indicated by the panel label.
Example shown below just above the PWB drawing.
Always adjust "Highest to Lowest" voltages.
VS and VA adjustment resistors are shown in the drawing below.
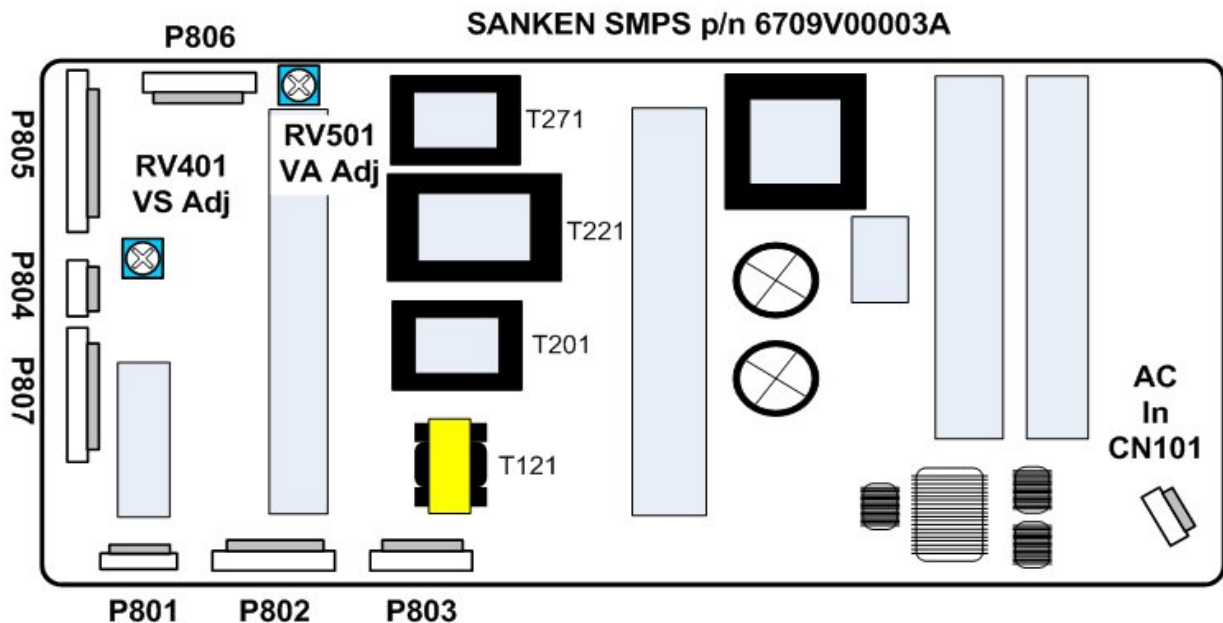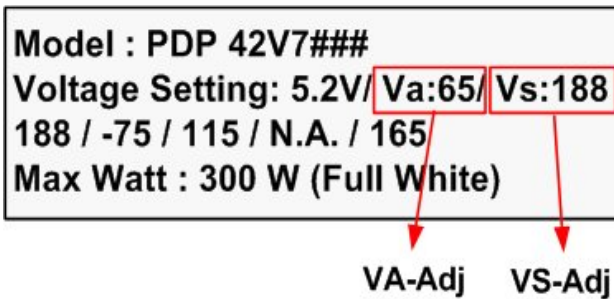They are located at the top left of the board.
RV401 is the VS adjustment pot.
RV501 is the VA adjustment pot.

Set should be in "Full White Raster"

1) **VS ADJUST:** Connect DVM to pin 1, 2 or 3 of P805. Adjust RV401 until the voltage matches the panel's voltage label.

2) **VA ADJUST:** Connect DVM to pin 9 or 10 of P805. Adjust RV501 until the voltage matches the panel's voltage label.

Model : PDP 42V7###
Voltage Setting: 5.2V/ Va:65/ Vs:188
188 / -75 / 115 / N.A. / 165
Max Watt : 300 W (Full White)

VA-Adj   VS-Adj

SANKEN SMPS p/n 6709V00003A

42V7 PANEL

42V7 SMPS BOARD ADJUSTMENT POINTS
Part Number: EAY32808901

These two voltages are adjustable and should be adjusted to the correct values as indicated by the panel label.
Example shown below just above the PWB drawing.
Always adjust "Highest to Lowest" voltages.
VS and VA adjustment resistors are shown in the drawing below.
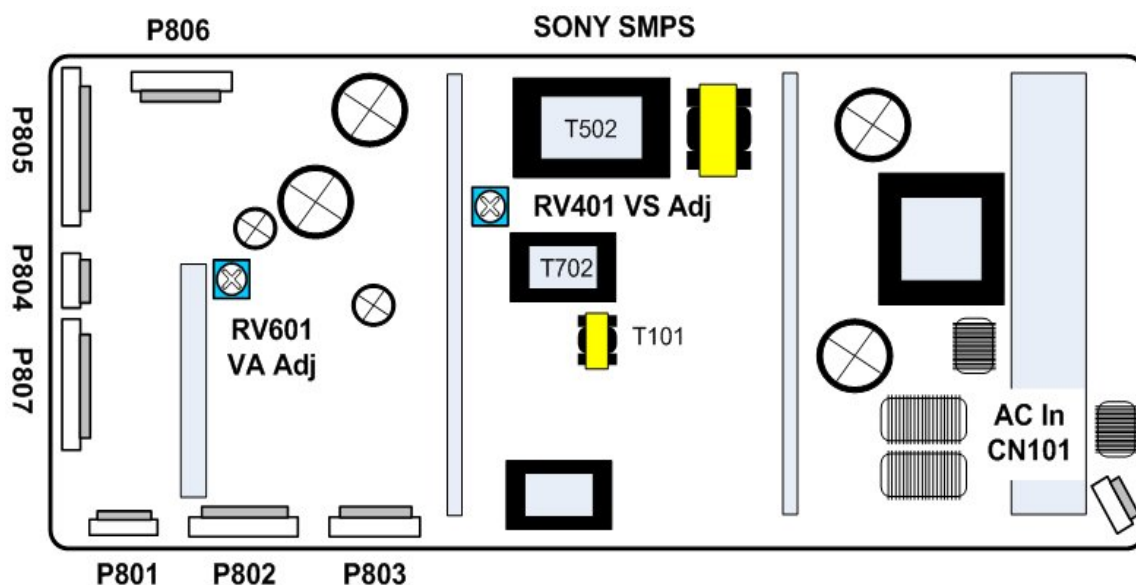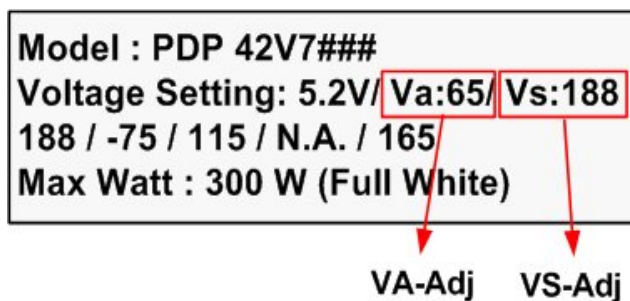They are located at the top left of the board.
RV401 is the VS adjustment pot.
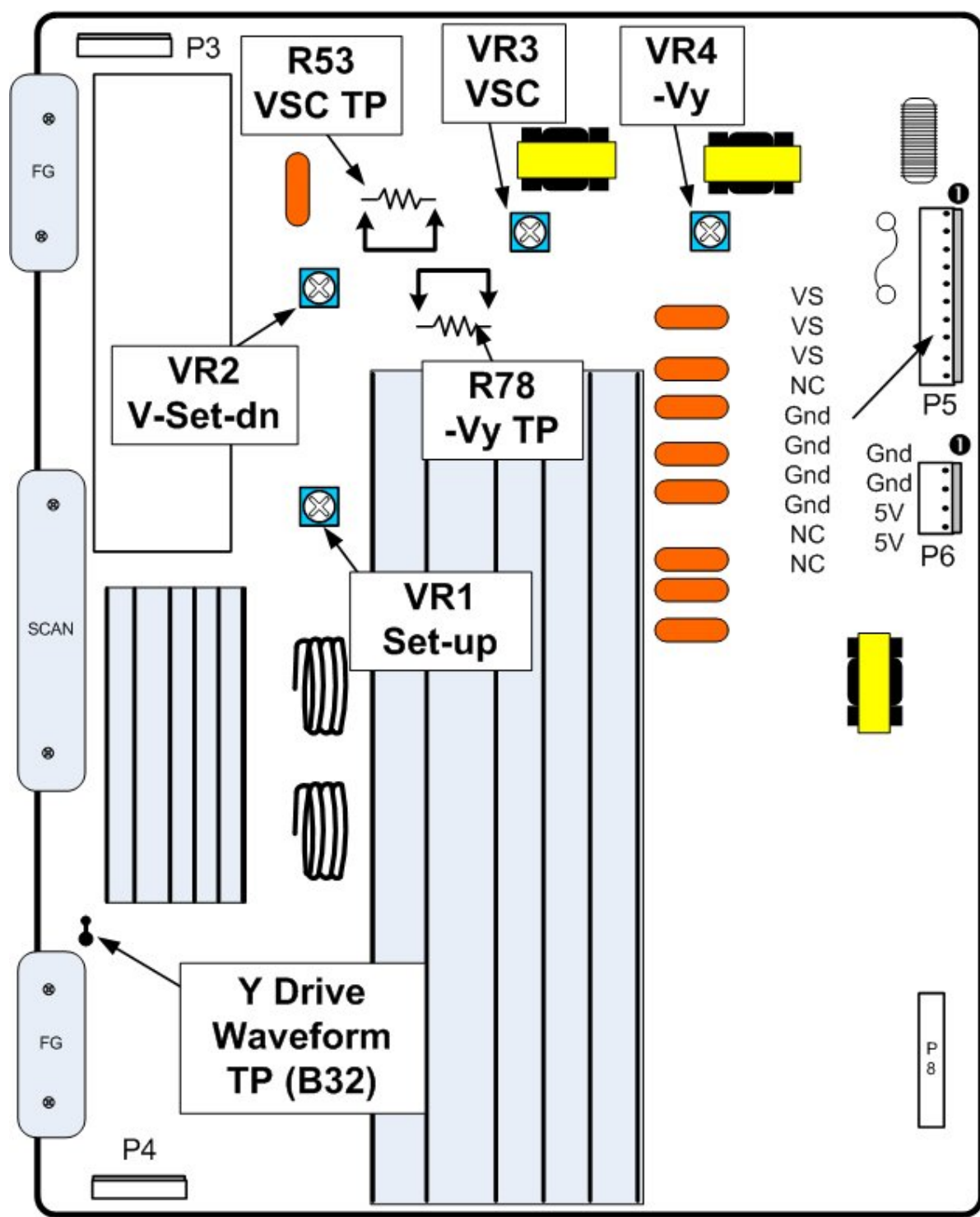RV601 is the VA adjustment pot.

Set should be in "Full White Raster"

1) **VS ADJUST:** Connect DVM to pin 1, 2 or 3 of P805. Adjust **RV401** until the voltage matches the panel's voltage label.

2) **VA ADJUST:** Connect DVM to pin 9 or 10 of P805. Adjust **RV601** until the voltage matches the panel's voltage label.

Model : PDP 42V7###
Voltage Setting: 5.2V/ Va:65/ Vs:188
188 / -75 / 115 / N.A. / 165
Max Watt : 300 W (Full White)

VA-Adj   VS-Adj

42V7 PANEL

P806   SONY SMPS

P805

P804

P807

RV401 VS Adj

T502

T702

T101

RV601
VA Adj

AC In
CN101

P801   P802   P803

42V7 Y-SUS BOARD ADJUSTMENT POINTS

42V7 PANEL

P3

R53 VSC TP

VR3 VSC

VR4 -Vy

VR2 V-Set-dn

R78 -Vy TP

VR1 Set-up

VS
VS
VS
NC
Gnd
Gnd
Gnd
Gnd
NC
NC

P5

Gnd
Gnd
5V
5V

P6

FG

SCAN

Y Drive Waveform TP (B32)

FG

P4

P8

VSC and –Vy Voltage Adjustment Locations

These voltages are Adjustable and should be adjusted to the correct values as indicated by the panel's voltage label.
Example shown in the top right.

Model : PDP 42V7###
Voltage Setting: 5.2V/ Va:65/ Vs:188
188 / -75 / 115 / N.A. / 165
Max Watt : 300 W (Full White)

-Vy   VSC

VSC (VR3) adjustment resistor located top center of the board is shown in the picture below.

Adjust the **VSC (VR3)** while reading across R53 until voltage matches the panel's voltage label.

-Vy (VR4) adjustment resistor located top center of the board is shown in the picture below.

Adjust the -Vy (VR4) while reading across R78 until voltage matches the panel's voltage label.
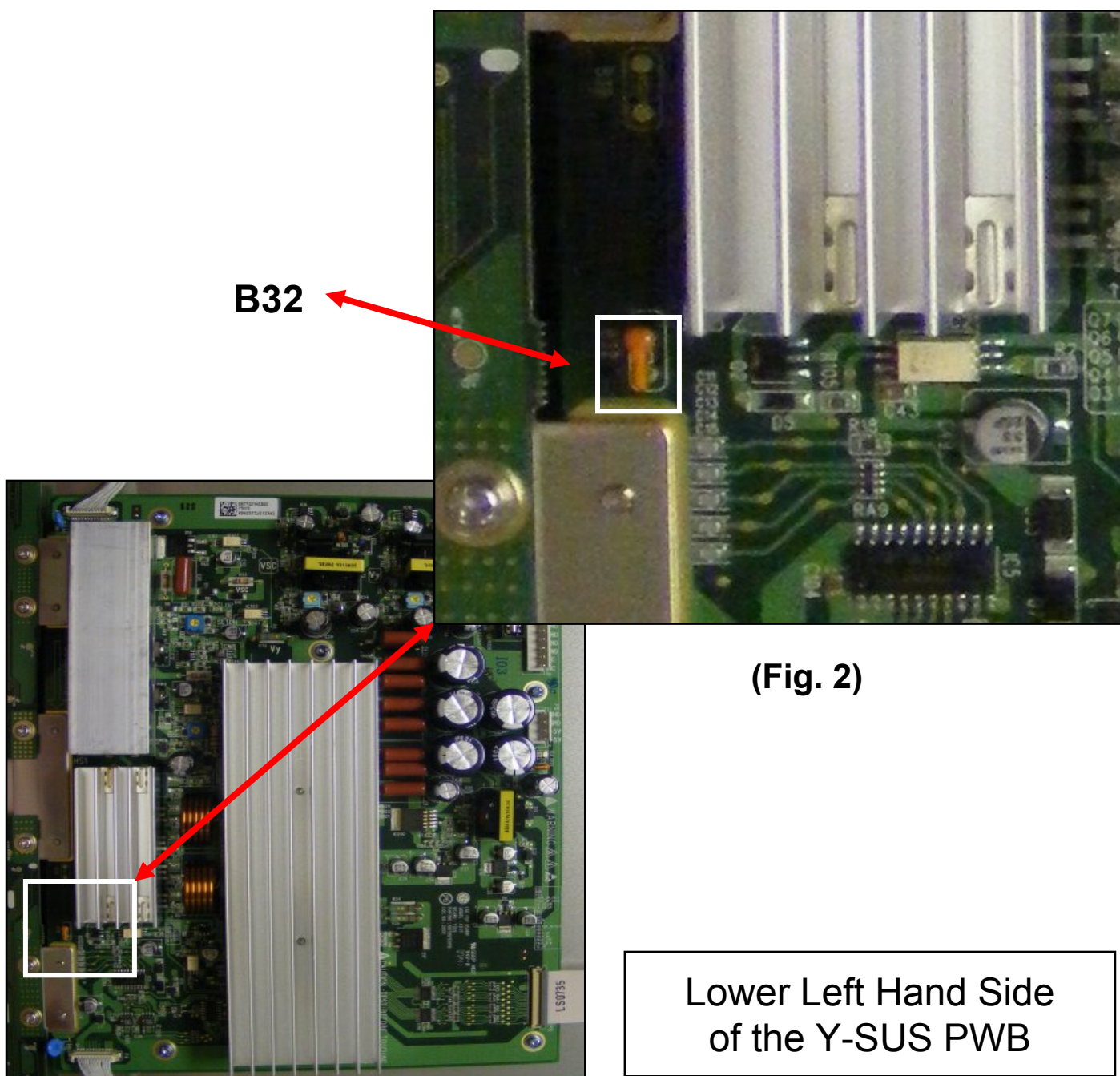

-VSC
TP
R53

VSC
VR3

-VY
VR4

-VY
TP
R78
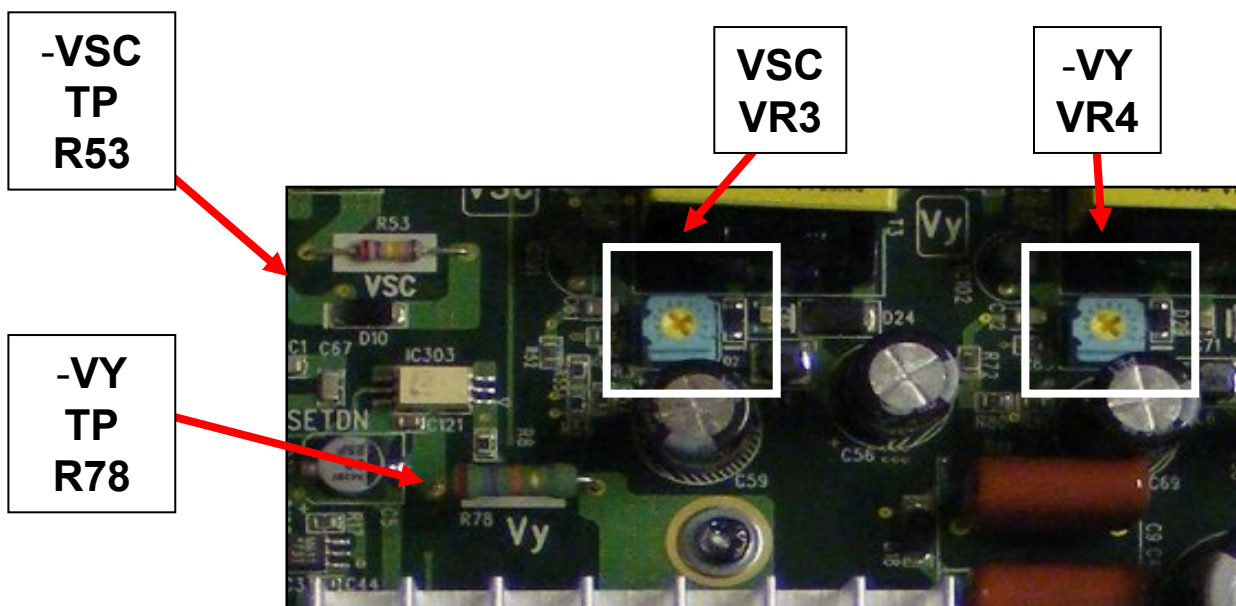
42V7 Y-Drive Waveform Test Point

Figure 1 shows the Y-SUS PWB with the area of the Waveform TP outlined in the white box.

Figure 2
Shows a close-up image of the Y-Drive waveform test point **B32**.

B32

(Fig. 2)

Lower Left Hand Side
of the Y-SUS PWB

(Fig. 1)

42V7 Y-DRIVE WAVEFORM ADJUSTMENT

VS, VA, VSC, -Vy should have been completed.

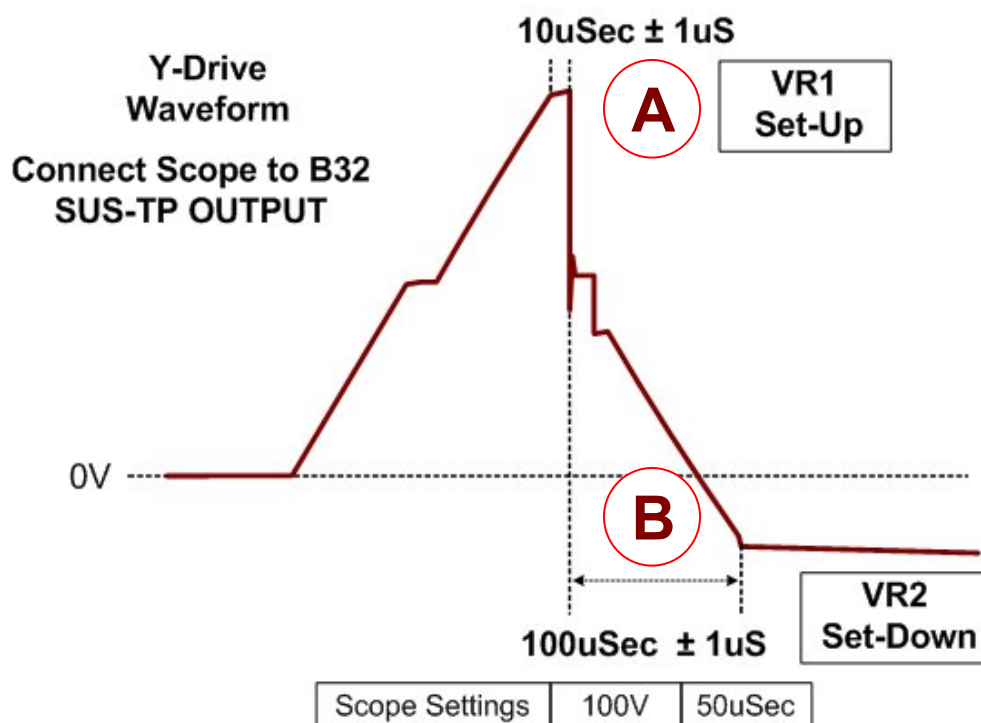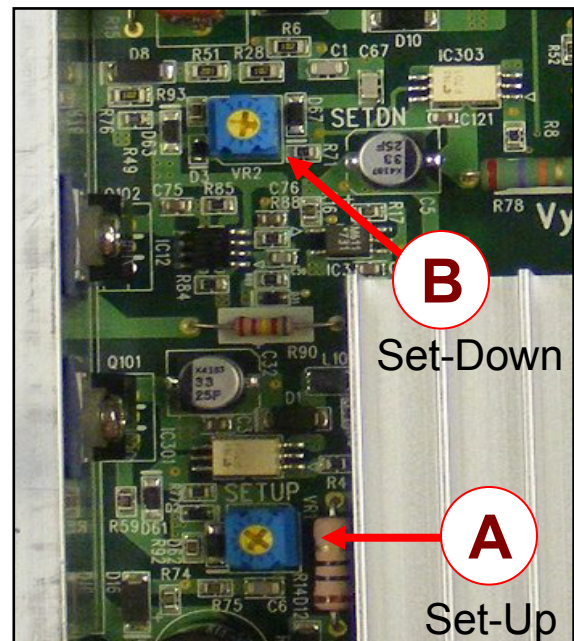See Y-SUS Test Points and Adjustments diagram for locations.

Using a Full White Raster, adjust the Set-up and Set-dn section of the Y-Drive waveform.

Oscilloscope TP B32 on the "Waveform" TP on the Y-SUS PWB.

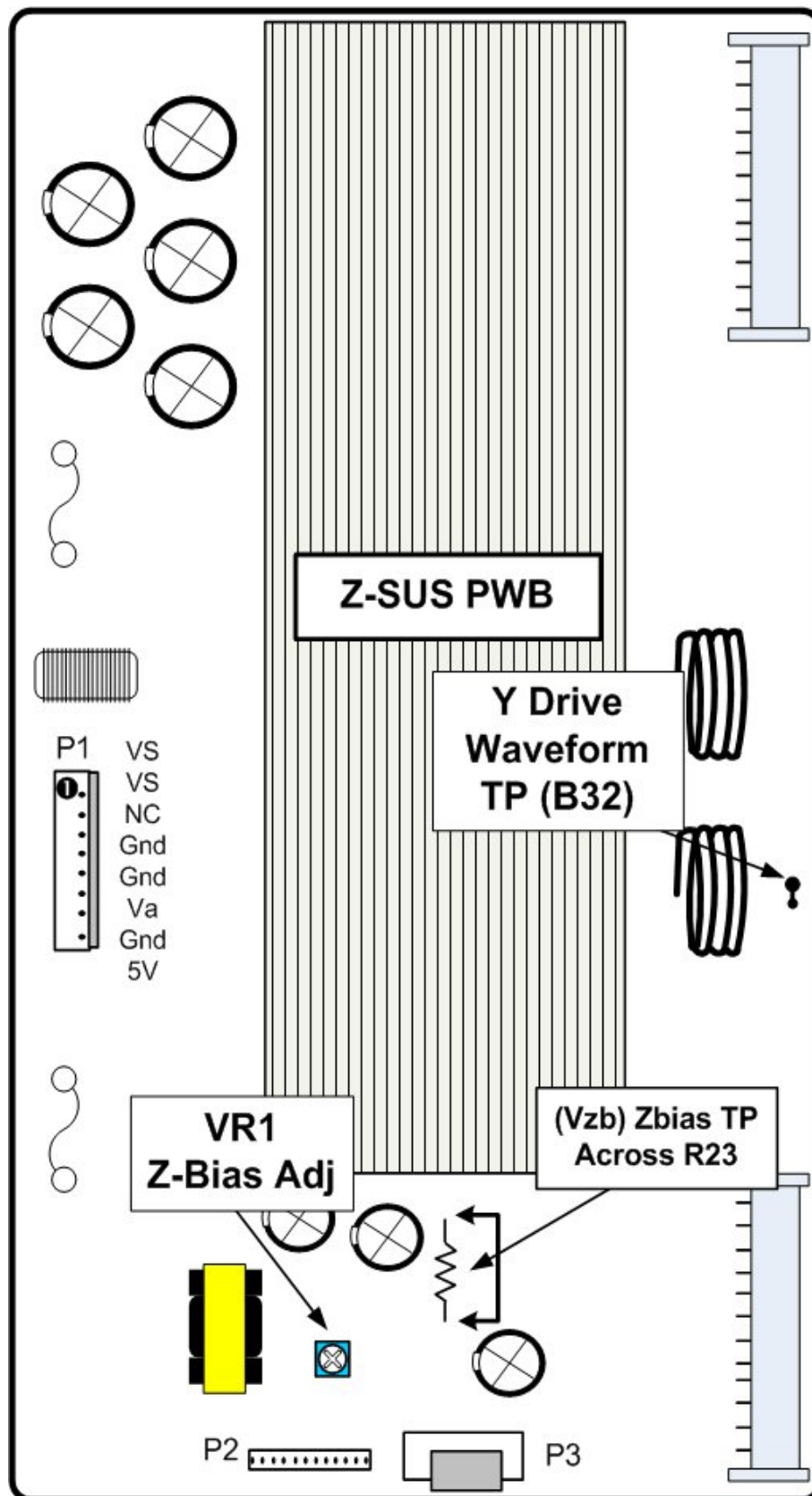**(A) Set-Up:** Adjust **VR1** while observing area **(A)** and set to **10uSec ± 1uSec.**

(B) Set-Down: Adjust **VR2** while observing area **(B)** and set to **100uSec ± 1uSec.**

B — Set-Down

A — Set-Up

10uSec ± 1uS

Y-Drive Waveform

Connect Scope to B32 SUS-TP OUTPUT

A — VR1 Set-Up

0V

B

100uSec ± 1uS — VR2 Set-Down

Scope Settings	100V	50uSec

After adjustment, please recheck VS, VA, VSC, -Vy and Z-bias.

42V7 Z-SUS BOARD ADJUSTMENT POINTS

42V7 PANEL

Z-SUS PWB

Y Drive
Waveform
TP (B32)

P1
VS
VS
NC
Gnd
Gnd
Va
Gnd
5V

VR1
Z-Bias Adj

(Vzb) Zbias TP
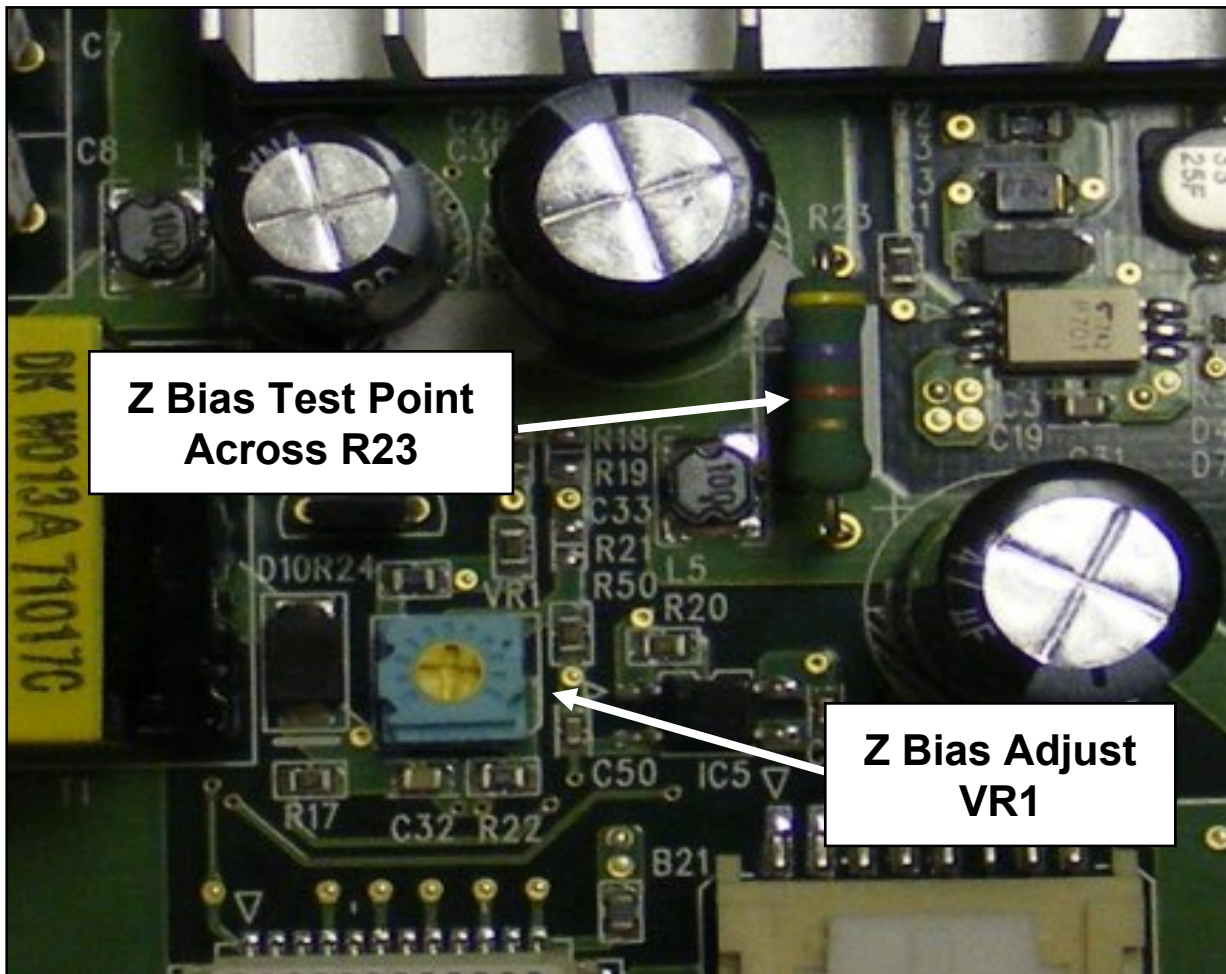Across R23

P2

P3

42V7 Z-SUS PWB ADJUSTMENT POINTS

VS, VA, VSC, -Vy should have been completed.

Model : PDP 42V7###
Voltage Setting: 5.2V/ Va:65/ Vs:188
188 / -75 / 115 / N.A. / 165
Max Watt : 300 W (Full White)

Zbias

Full White Raster

1) Z-Bias TP: Connect DVM across **R23**.
2) Adjust Z-Bias (VR1) to match the panel's voltage label.

Z Bias Test Point Across R23

Z Bias Adjust VR1

Bottom of the Y-SUS Board

42V7 PANEL

42X2 and 42X2A PANEL
QUICK REFERENCE
ALIGNMENT SECTION

THE FOLLOWING MODELS USE THE 42X2 PANEL

DN42PX12X	MZ42PM12X
DN42PX13X	MZ42PZ92XV
DN42PX13XW	RP42PY10X
DN42PX40X	RT42PX12X
DN42PY10X	RT42PY10X
DN42PY11X	RZ42PX12X
DN42PY11X	RZ42PY10X
DN42PZ66	
DN42PZ75	
DT42PY10X	
DU42PX12X	
DU42PY10X	
MN42PZ95XV	
MU42PM12X	
MU42PZ90XV	

THE FOLLOWING MODELS USE THE 42X2A PANEL

42PM2D	42PX5D
42PX2DUC	42PX5DEB
42PX4DGS	42PX5RTB
42PX4DGS2	DN42PX12
42PX4DGW	
42PX4DNA	
42PX4DR	
42PX4DR	
42PX4DRK	
42PX4DRKNA	
42PX4DRKS	
42PX4DRKW	
42PX4DRW	
42PX4DS	
42PX4DUB	

![LG Life's Good logo]

42X2 SMPS BOARD ADJUSTMENT POINTS

Set should be in "White Wash"
These voltages are adjustable and should be adjusted to
the correct values as indicated by your Panel's Voltage
Label. Examples shown on the right.

Always adjust "Highest to Lowest" voltages.
Adjustment resistors are shown in the drawing below.
They are located at the top Right of the board.
Note: Your Board my vary in appearance.

1) **3.4V ADJUST:**
   Connect DVM to Pin 1 or 2 of P802
   Adjust VR251 (3.4V Adj) until the DVM reads 3.4V

2) **6V ADJUST:**
   Connect DVM to Pin 5 or 6 of P802
   Adjust VR280 (6V Adj) until the DVM reads 6V

3) **5V ADJUST:**
   Connect DVM to Pin 3 of P801
   Adjust VR159 (5V Adj) until the DVM reads 5V

4) **19V ADJUST:** (Audio)
   Connect DVM to Pin 1 or 2 of P803
   Adjust (19V Adj) pot until the DVM reads 19V

5) **VS ADJUST:**
   Connect DVM to Pin 9 or 10 of P805
   Adjust VR551 and match your label.

6) **VA ADJUST:**
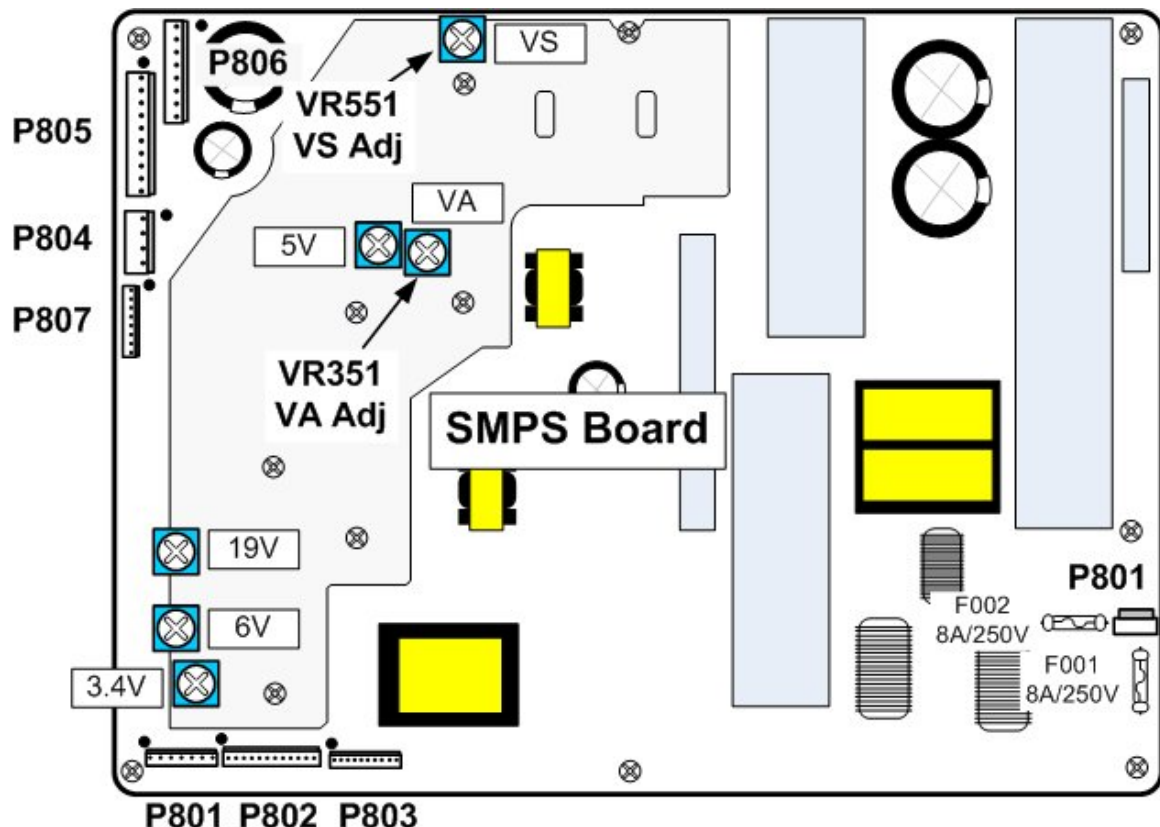   Connect DVM to Pin 1 or 2 of P803
   Adjust VR351 (VS Adj) and match your label

Model : PDP 42X2###
All Voltage: DC (=) 5.2V
Va : 60V   Vs : 200V
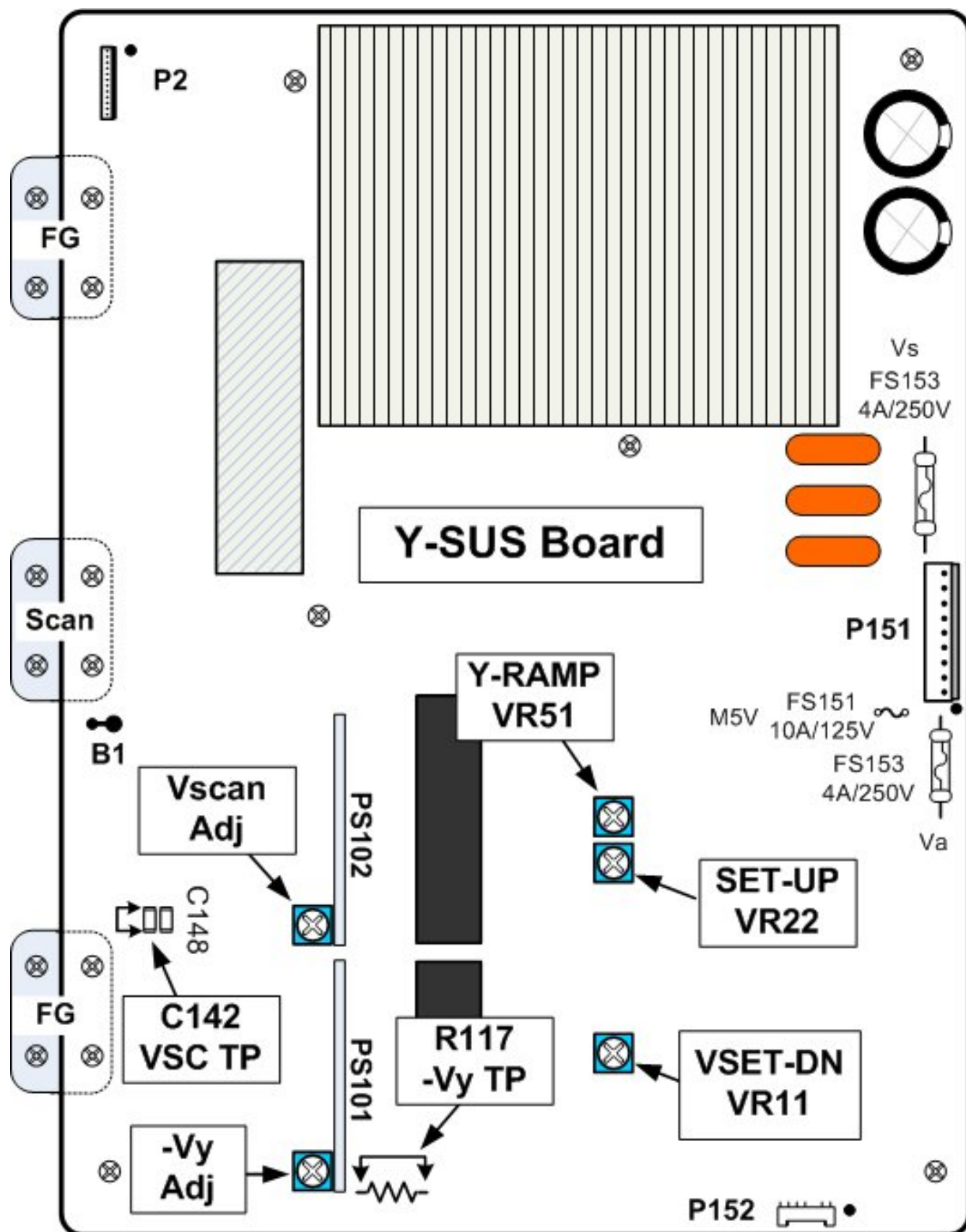90 / -200 / 120 / N.A. / 90
Max Watt : 330 W (Full White)

VA   VS   5V
VR551   VR901   VR159

Model : PDP 42X2##2#
All Voltage: DC (=) 5.2V
Va : 60V   Vs : 195V
80 / -200 / 120 / N.A. / 90
Max Watt : 330 W (Full White)

The Label difference between
a 42X2 and 42X2##2#

42X2 PANEL

42X2 Y-SUS BOARD ADJUSTMENT POINTS

42X2 PANEL

42X2 VSCAN and -Vy ADJUSTMENTS

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes
   before making adjustments.
   Vs and Va adjustments complete.
2) Place unit into White Wash from the
   Customer's Menu for all adjustments.
**3) Be sure to use all adjustment values as indicated on your panel's voltage label
   in the upper left of the panel.**

Model : PDP 42X2###
All Voltage: DC (=) 5.2V
Va : 60V   Vs : 200V
90 / -200 / 120 / N.A. / 90
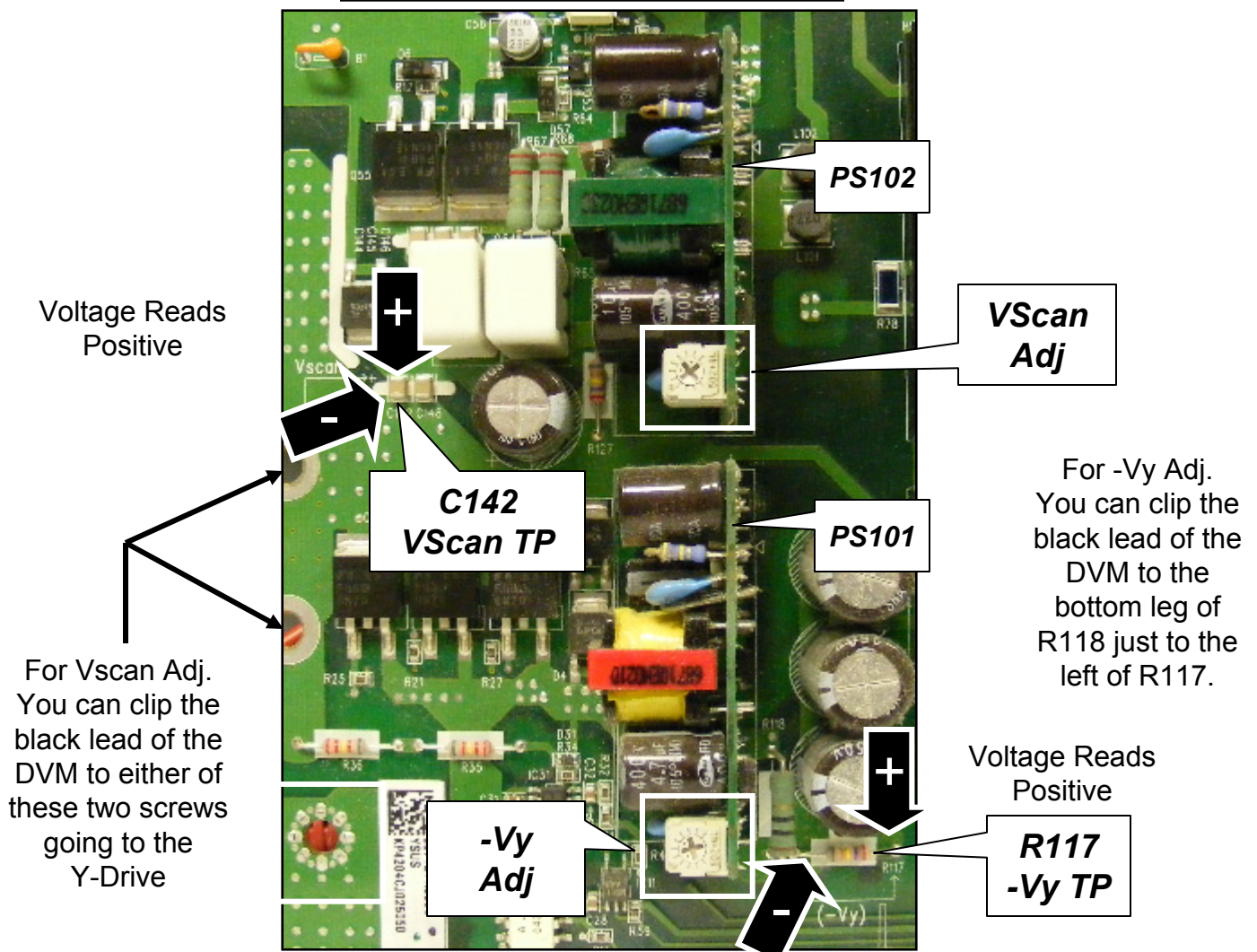Max Watt : 330 W (Full White)

-Vy   *VSC*

PROCEDURE: (See figure below for locations)

1) Adjust –Vy (**VR On PS101**). Measured across –Vy TP **R117**.
   Match your specific Panel's Voltage label ±1V.

2) Adjust Vscan (**VR On PS102**). Measured across Vscan TP **C142**.
   Match your specific Panel's Voltage label ±1V.

Location: Bottom Left of board

Voltage Reads
Positive

*VScan
Adj*

PS102

*C142
VScan TP*

PS101

For -Vy Adj.
You can clip the
black lead of the
DVM to the
bottom leg of
R118 just to the
left of R117.

For Vscan Adj.
You can clip the
black lead of the
DVM to either of
these two screws
going to the
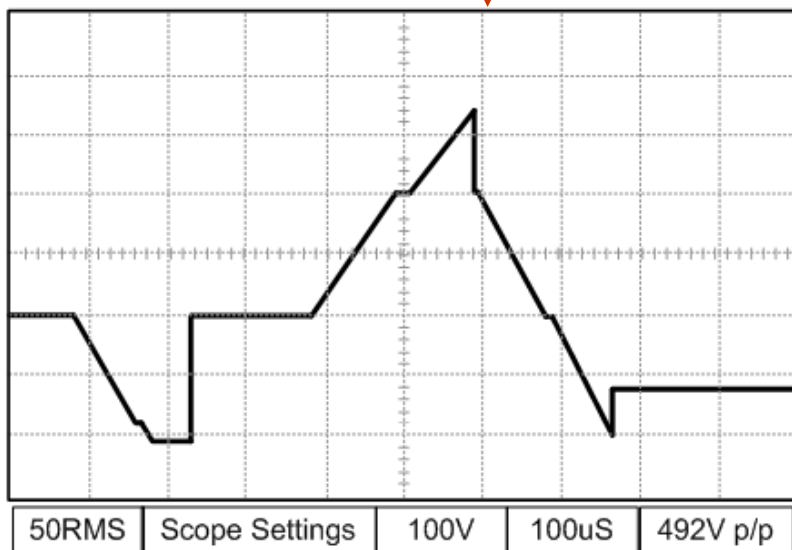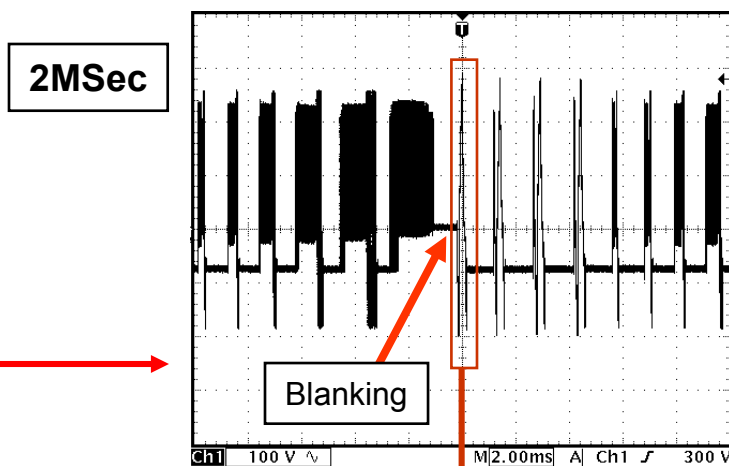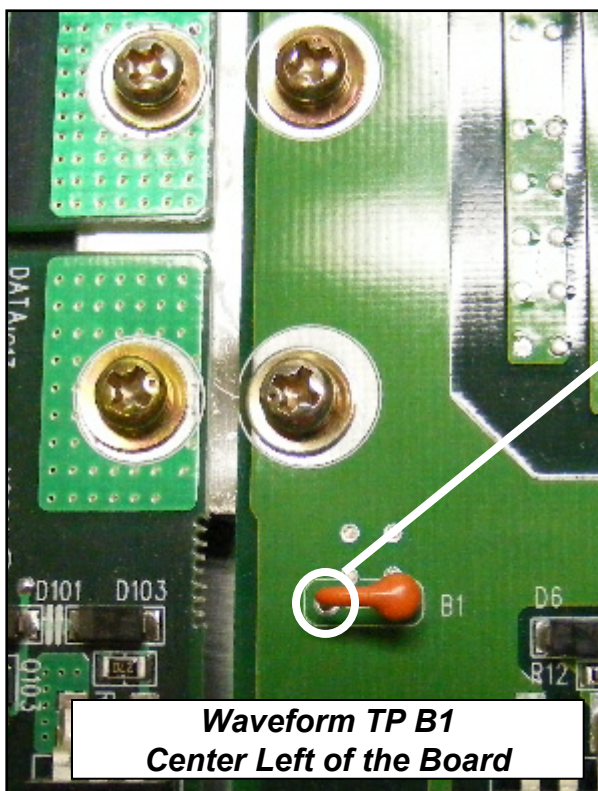Y-Drive

*-Vy
Adj*

Voltage Reads
Positive

*R117
-Vy TP*

42X2 Y-SUS Drive Waveform Test Point

The figure below shows a close-up image of the Y-Drive waveform test point on the Y-SUS board. (B1).
It is located on the Center Left hand side of the Y-SUS board.

VRamp, VSet-Up and VSet-Down portions of the waveform are adjusted using this Test Point.

TP LOCATION UNDER CENTER SET OF TWO SCREWS TO THE Y-DRIVE BOARD (See next page for adjustment details)

Waveform TP B1
Center Left of the Board

2MSec

Blanking

Ch1   100 V   M 2.00ms   A   Ch1   300 V

| 50RMS | Scope Settings | 100V | 100uS | 492V p/p |

42X2 Y-DRIVE WAVEFORM ADJUSTMENTS

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
   All DC adjustments to the panel should have been completed.
2) Place unit into **White Wash** from the Customer's Menu for all adjustments.
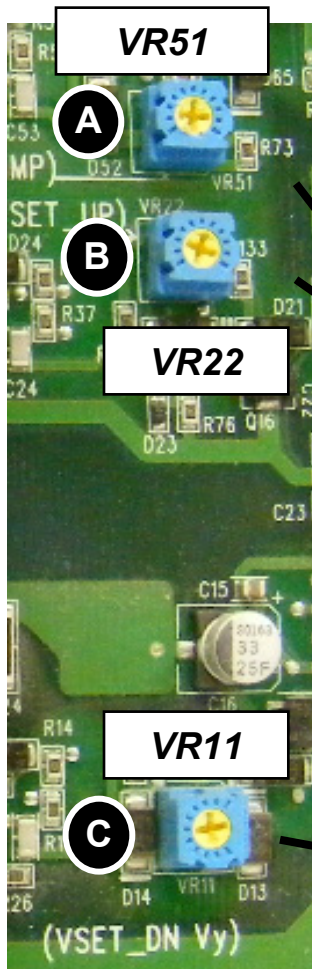
ADJUSTMENT LOCATIONS
(See 3 pages back for Adjustment VR and Waveform TP locations)
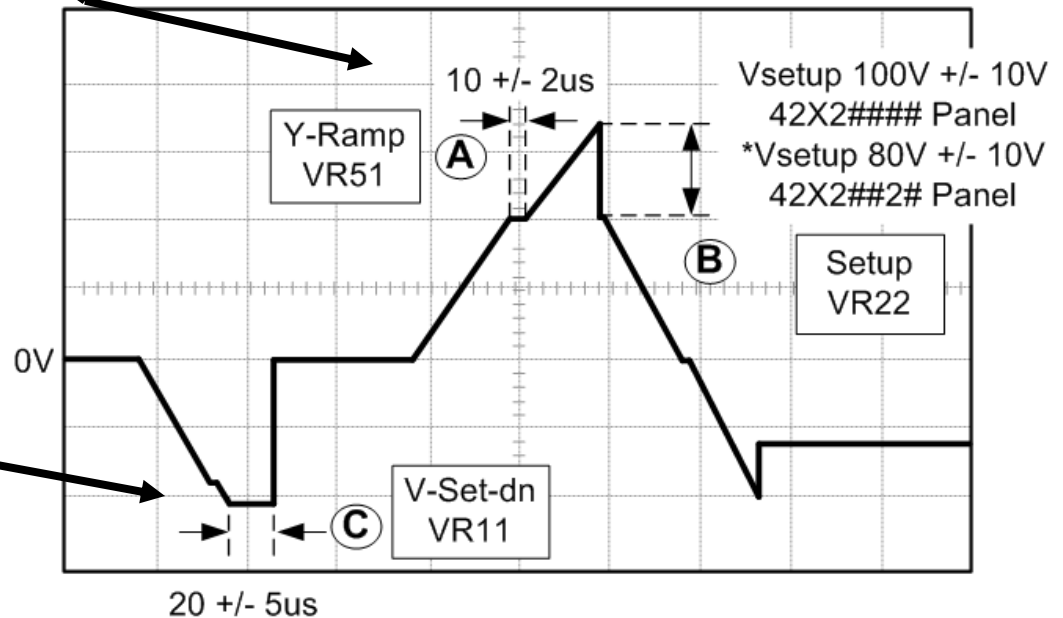
42X2 PANEL

VRAMP ADJUST:
1) Adjust **VR51** and set the **(A)** time of the signal to match the waveform shown below. (10uSec ± 2uSec)

VSET-UP ADJUST:
2) Adjust **VR22** and set the **(B)** portion of the signal to match the waveform shown below.
42X2#### panel (100V ± 10V) or
42X2##2# panel (80V ± 10V)

VR51

A

VR22

B

Waveform Test Point
Y-SUS Center Left (Waveform TP B1)

VR11

C

ADJUSTMENT LOCATIONS:
Bottom Center of the board.

10 +/- 2us

Y-Ramp VR51   (A)

Vsetup 100V +/- 10V
42X2#### Panel
*Vsetup 80V +/- 10V
42X2##2# Panel

(B)   Setup VR22

0V

V-Set-dn VR11   (C)

20 +/- 5us

VSET-DN ADJUST:
2) Adjust **VR11** and set the **(C)** time of the signal to match the waveform shown above.
   (20uSec ± 5uSec)

42X2 PANEL
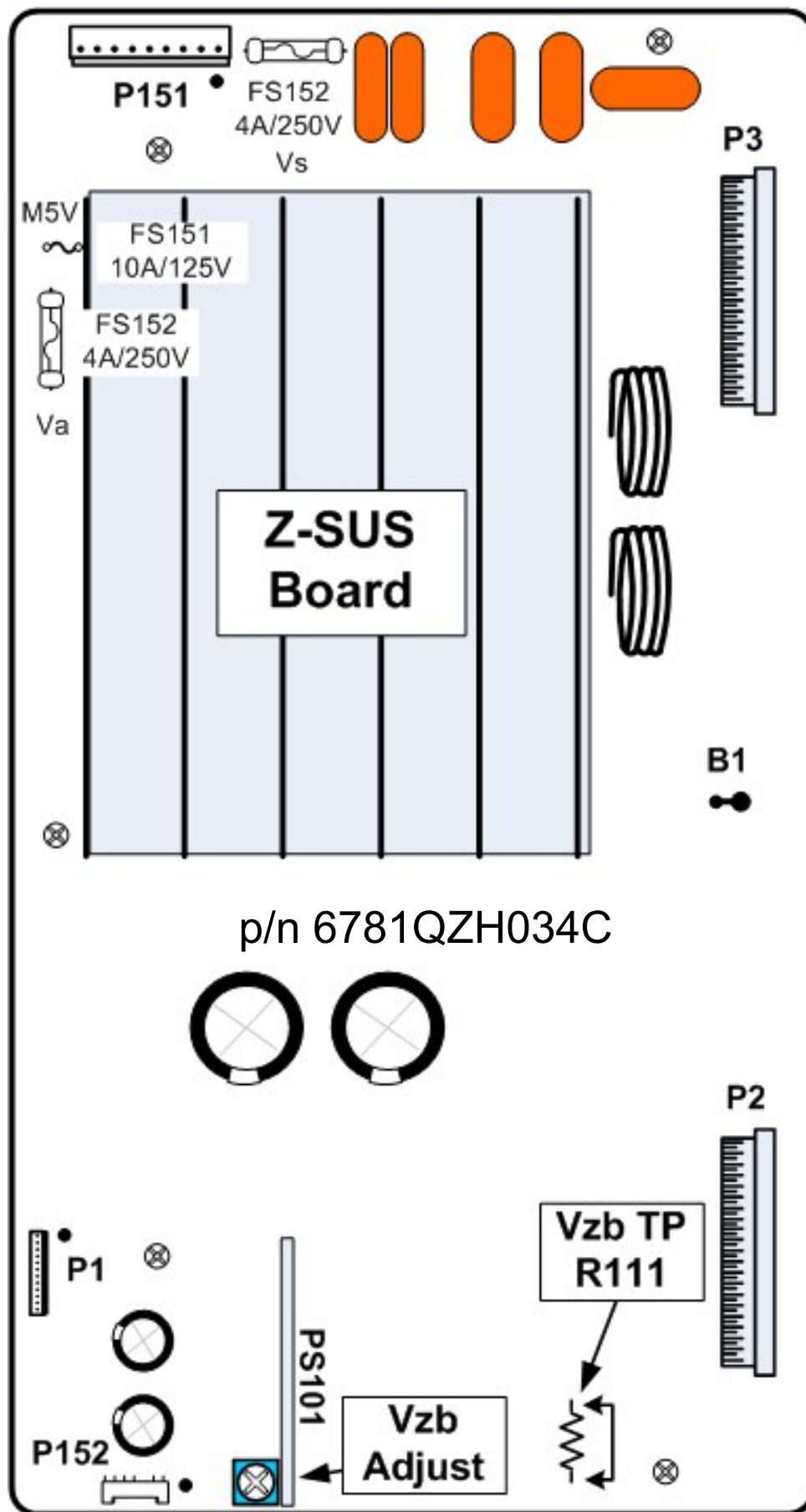
P151

FS152
4A/250V
Vs

P3

M5V

FS151
10A/125V

FS152
4A/250V

Va

Z-SUS
Board

B1

p/n 6781QZH034C

P2

P1

Vzb TP
R111

PS101

P152

Vzb
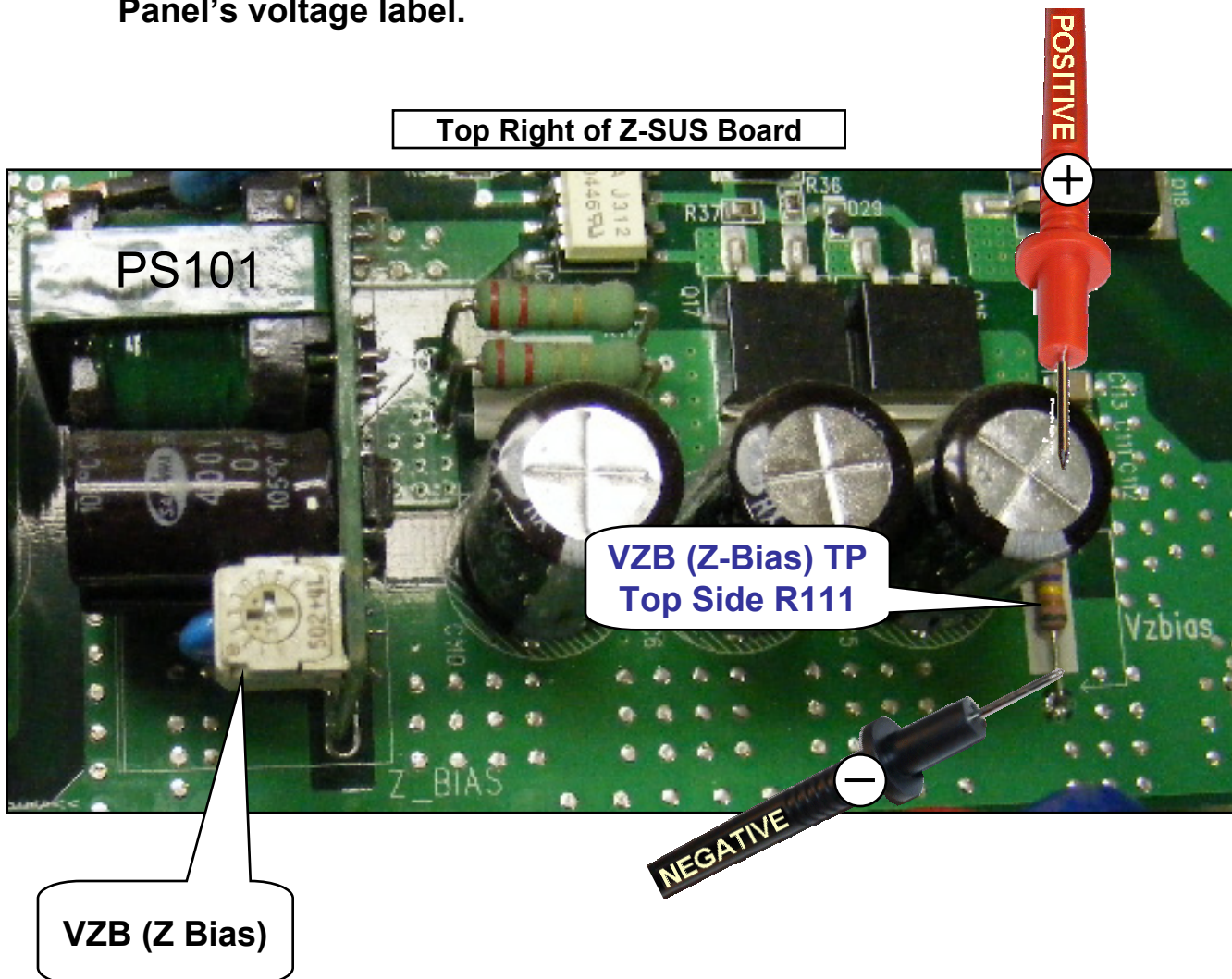Adjust

42X2 Z-SUS (Z-Bias) ADJUSTMENT:

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.

2) Place unit into White Wash from the Customer's Menu for all adjustments.

3) Be sure to use all adjustment values as indicated on the panel voltage label in the upper right hand corner of the panel.

PROCEDURE: (See preceding page for locations)

1. **Place DC Volt meter on VZB TP (Across R111). Top side to Chassis Ground.**
2. **Adjust VZB (Z Bias) pot located on PS101 in accordance with your Panel's voltage label.**

Model : PDP 42X2###
All Voltage: DC (=) 5.2V
Va : 60V   Vs : 200V
90 / -200 / 120 / N.A. / 90
Max Watt : 330 W (Full White)

VZB (Z Bias)

Top Right of Z-SUS Board

PS101

POSITIVE

VZB (Z-Bias) TP
Top Side R111

NEGATIVE

VZB (Z Bias)

42X2 PANEL

42X3 PLASMA PANEL

QUICK REFERENCE

ALIGNMENT HAND BOOK

MODELS USING THE 42X3 PANEL

42PB2DR / DR1 / DRNA / DR1S / DRD
42PB2DRL/ DRLNA / DRNA/ DRW
42PB2RR / B2RRML
42PC1D / D1 / D1ND / D1NF / D1S / D1W / D1DA
42PC1DB / DB1 / DB1ND / DB1NF / DB1S / DB1S1 / DB1W
42PC1DBND/ DCNF / DDA / DND / DR / DR1 / DR1NA / DR1W
42PC1DR2 / DR2NA/ DRA / DRANA / DRNA / DRW / DRW1
42PC1DRWNA / DRX / DRXNA / DW / RRTL / RRZL / RTH / RZH
42PC3D / DHUD / DUD / RAZJ
42PC7DHUA / RHMA
42PM2DNA
42PX3DUE
42PX4D / DAA / DG / DGNB / DNB / DRB / DRBNA / DRBS
42PX4DRBW / DRBW1 / DRBW2 / DRNA / DRNA
42PX5DA / DA1 / DA1NA / DANA / DAW / DMNA / DNA

LG
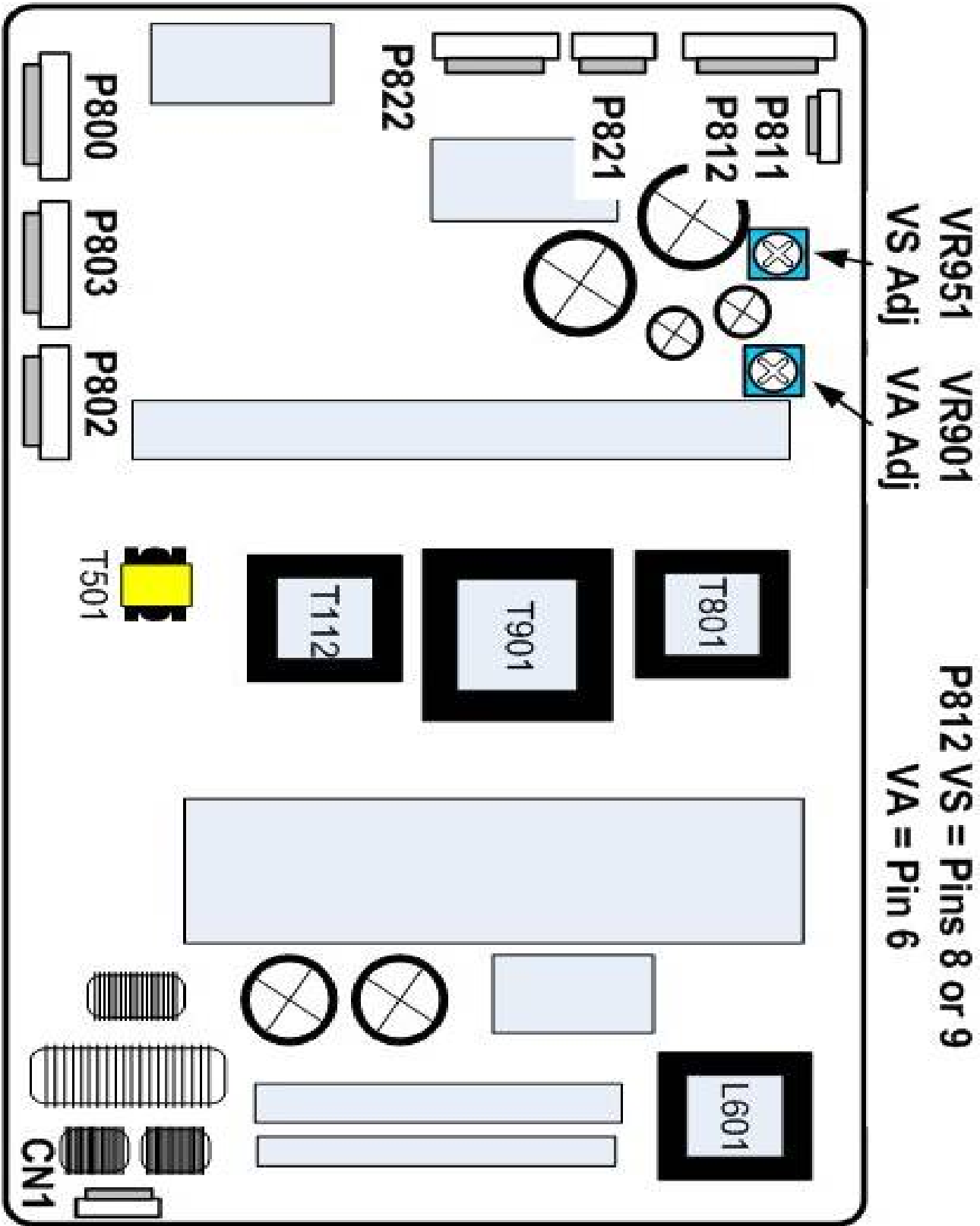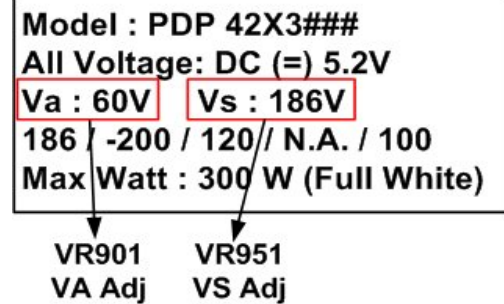## Life's Good

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42X3 SMPS Test Points and Adjustments

42X3 PANEL

P800

P803

P802

P822

P821

P811
P812

P811

T501

T112

T901

T801

L601

CN1

VR951
VS Adj

VR901
VA Adj

P812 VS = Pins 8 or 9
VA = Pin 6

42X3 VA and VS Voltage Adjustment Locations

These two voltages are adjustable and should be adjusted to the correct values as indicated by the panel label.
Example shown in the top right.
Always adjust "Highest to Lowest" voltages.

```
Model : PDP 42X3###
All Voltage: DC (=) 5.2V
Va : 60V     Vs : 186V
186 / -200 / 120// N.A. / 100
Max Watt : 300 W (Full White)
```

VR901   VR951
VA Adj   VS Adj

VS and VA adjustment resistors are shown in the picture below.
They are located at the top left of the board.
VR901 is the VS adjustment pot.
VR951 is the VA adjustment pot.

Set should be in "Full White Raster"

1) **VS ADJUST:** Connect DVM to pin 8 or 9 of P812. Adjust **VR951** until the voltage matches the panel's voltage label.

2) **VA ADJUST:** Connect DVM to pin 6 of P812. Adjust **VR901** until the voltage matches the panel's voltage label.
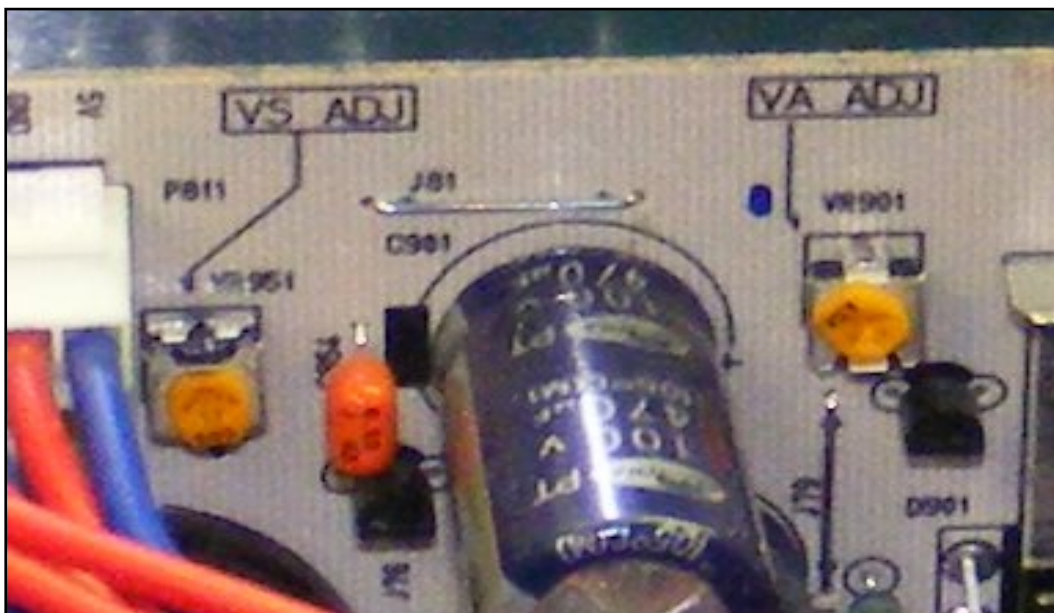
Top Left of the SMPS PWB

42X3 Y-SUS Test Points and Adjustment Locations

42X3 PANEL

Y-SUS PWB

Set-up
VR3

Set-dn
VR2

PS102

VSC
Adj

PS101

-Vy
Adj

C51
VSC TP

R36
-Vy TP
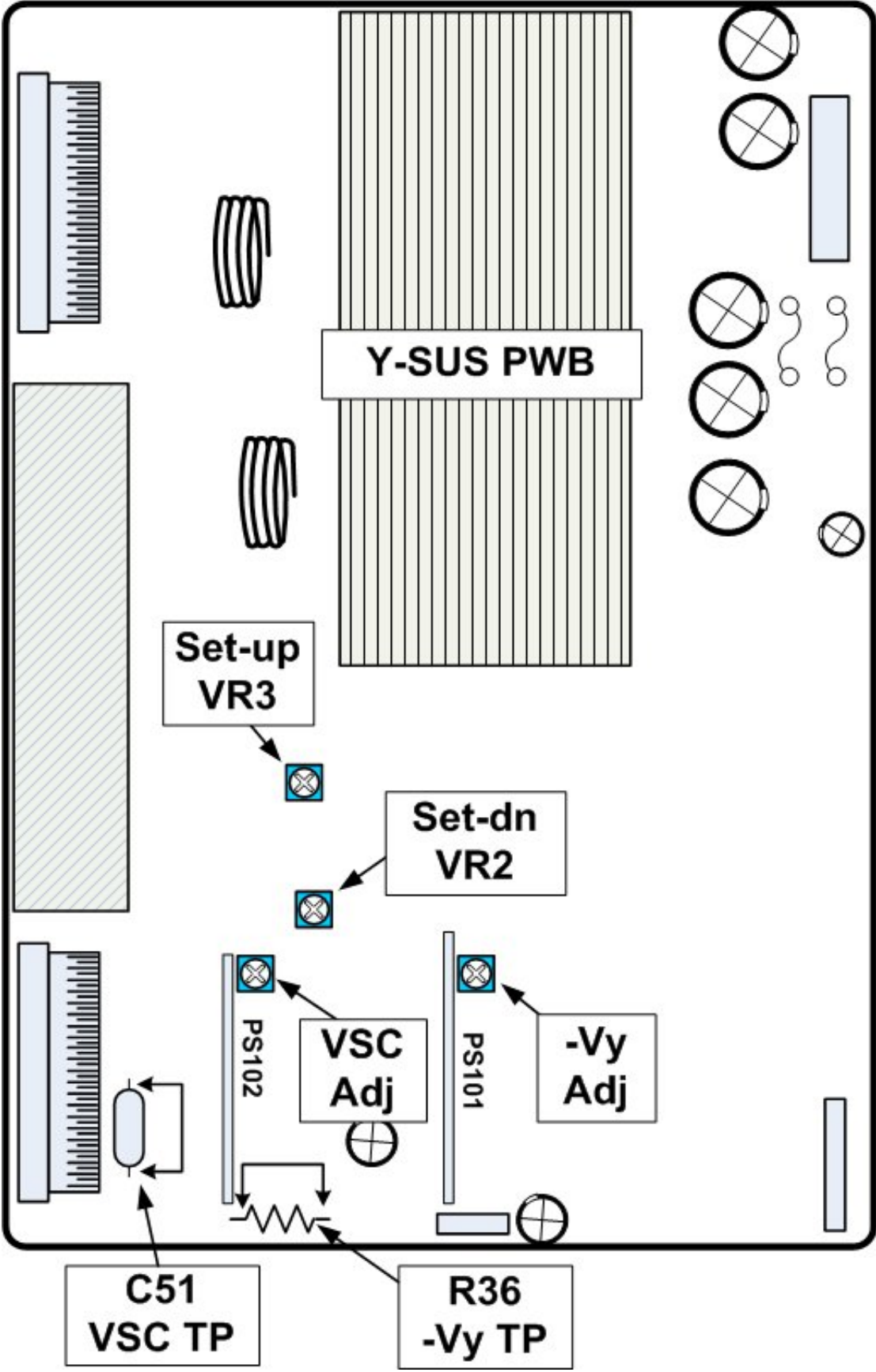
42X3 VSC and –Vy Voltage Adjustment Locations

These two voltages are adjustable and should be adjusted to the correct values as indicated by the panel label.
(Upper left hand side of the Panel).
 Example shown in the top right.
Always adjust "Highest to Lowest" voltages.
-Vy and VSC adjustment resistors are shown in the picture below.
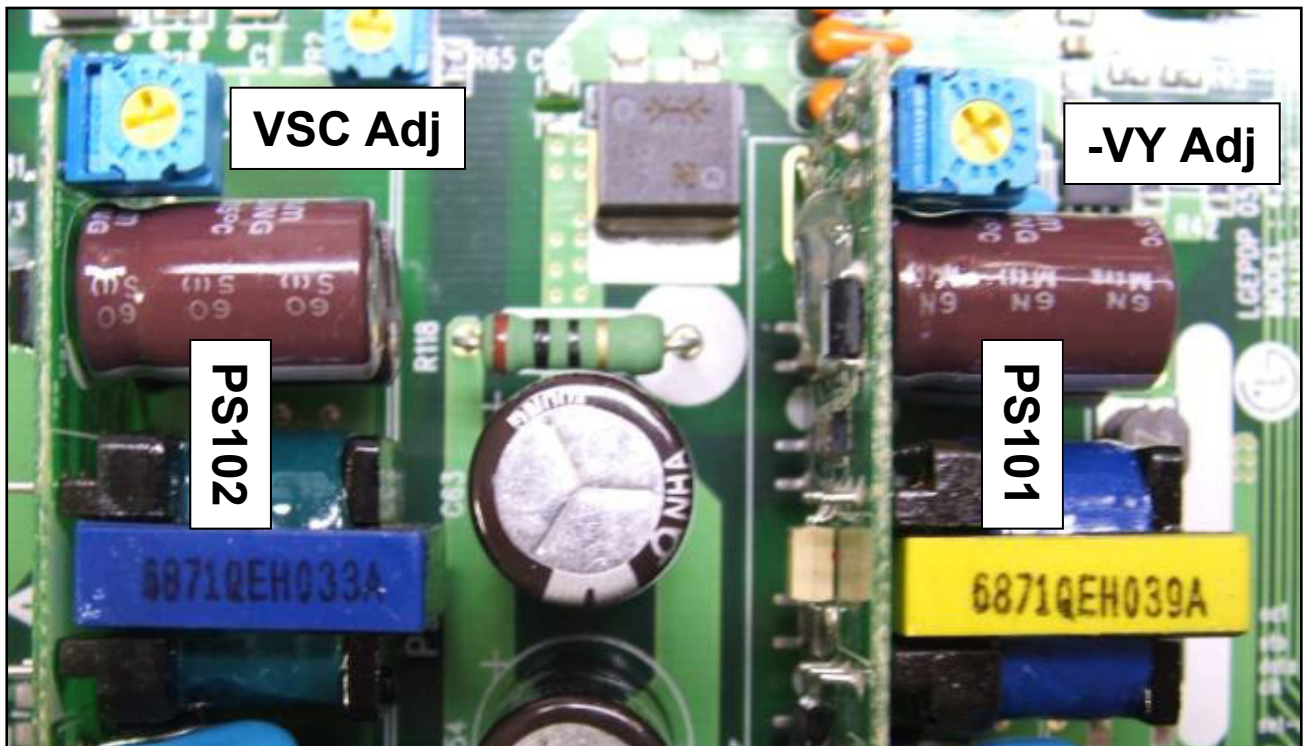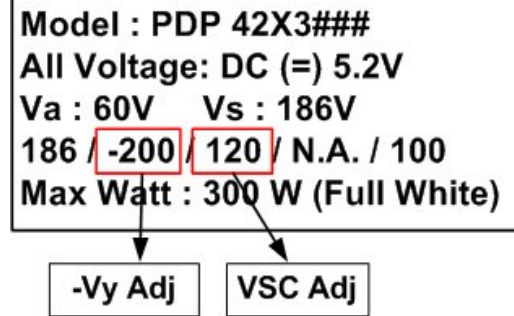They are located on the Boards labeled PS101 and S102.
PS101 is the -VY supply
PS102 is the VSC supply

Adjust the –Vy adjustment pot on the PS101 module while reading across **R3**6 until voltage matches the panel's voltage label. (See previous page for location).

Adjust the VSC adjustment pot on the PS102 module while reading across C51 until voltage matches label. (See previous page for location).
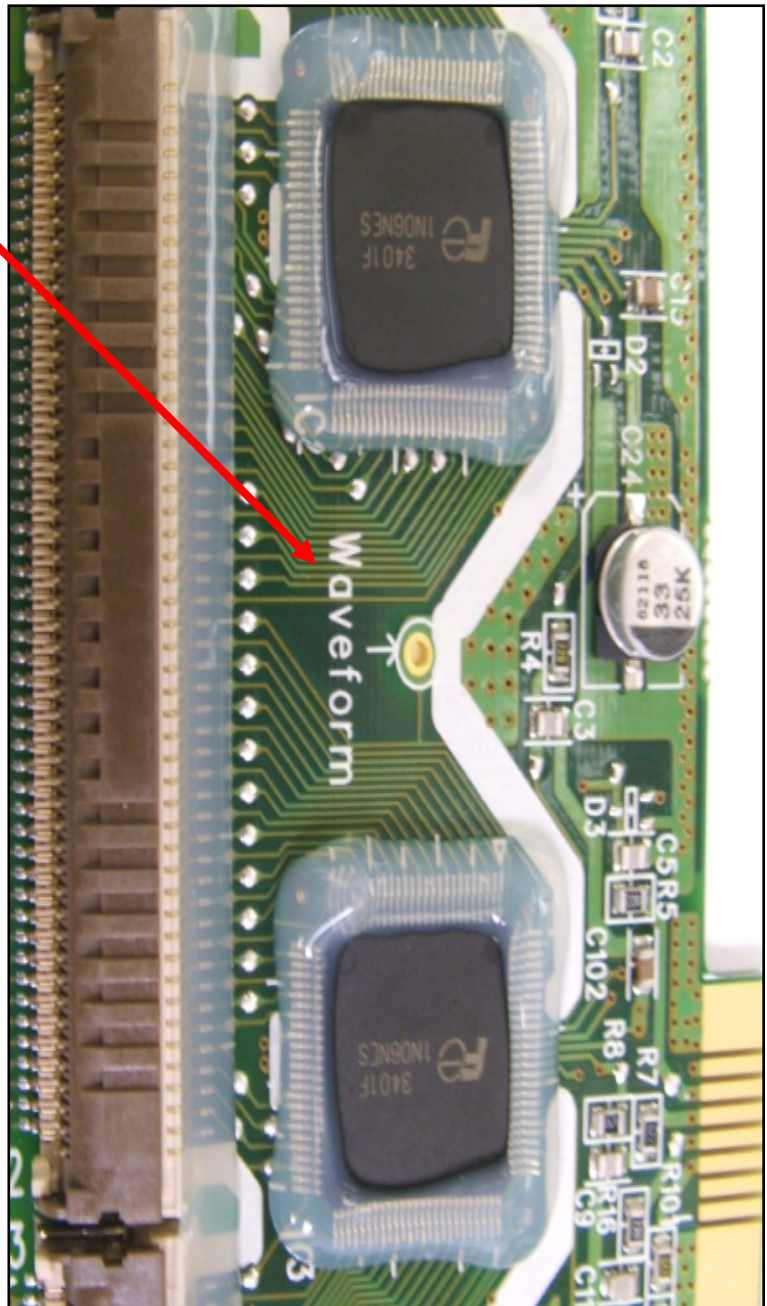
Model : PDP 42X3###
All Voltage: DC (=) 5.2V
Va : 60V   Vs : 186V
186 / -200 / 120 / N.A. / 100
Max Watt : 300 W (Full White)

-Vy Adj   VSC Adj

VSC Adj   -VY Adj

PS102   PS101

6871QEH033A   6871QEH039A

42X3 Y Drive Waveform Test Point

42X3 PANEL

Figure 1 shows the Y-Drive Board

Figure 2
Shows a close-up image of the Y-Drive waveform test point.

(Fig. 1)

(Fig. 2)

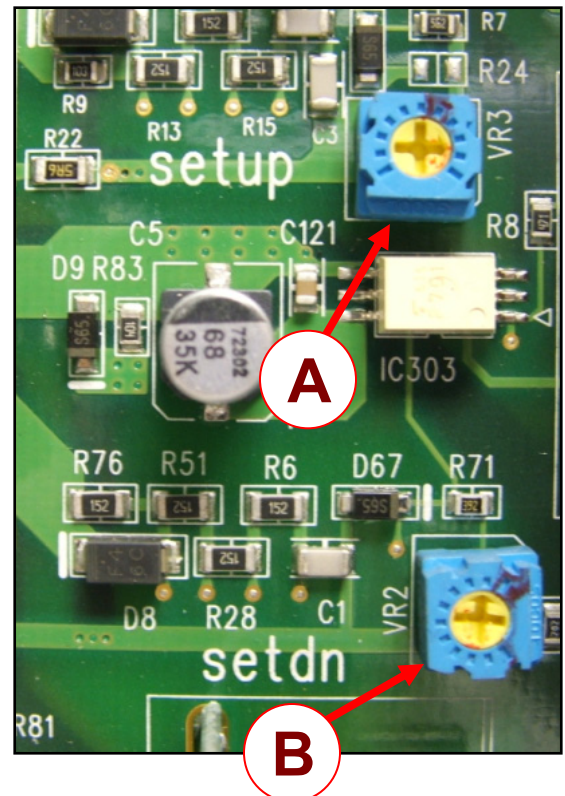# 42X3 Y-Drive Waveform Adjustment

Using a Full White Raster, adjust the Set-up and Set-dn section of the Y-Drive waveform. VS, VA, -Vy and VSC should have been completed.

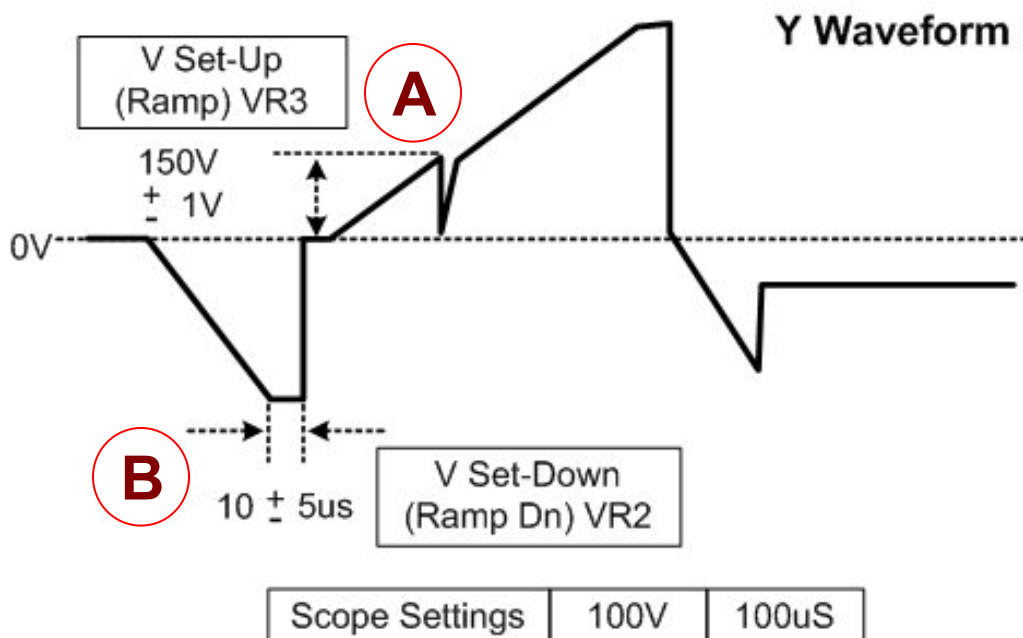See Y-SUS Test Points and Adjustments diagram for locations.

Oscilloscope TP on the "Waveform" TP on the Y-Drive PWB.

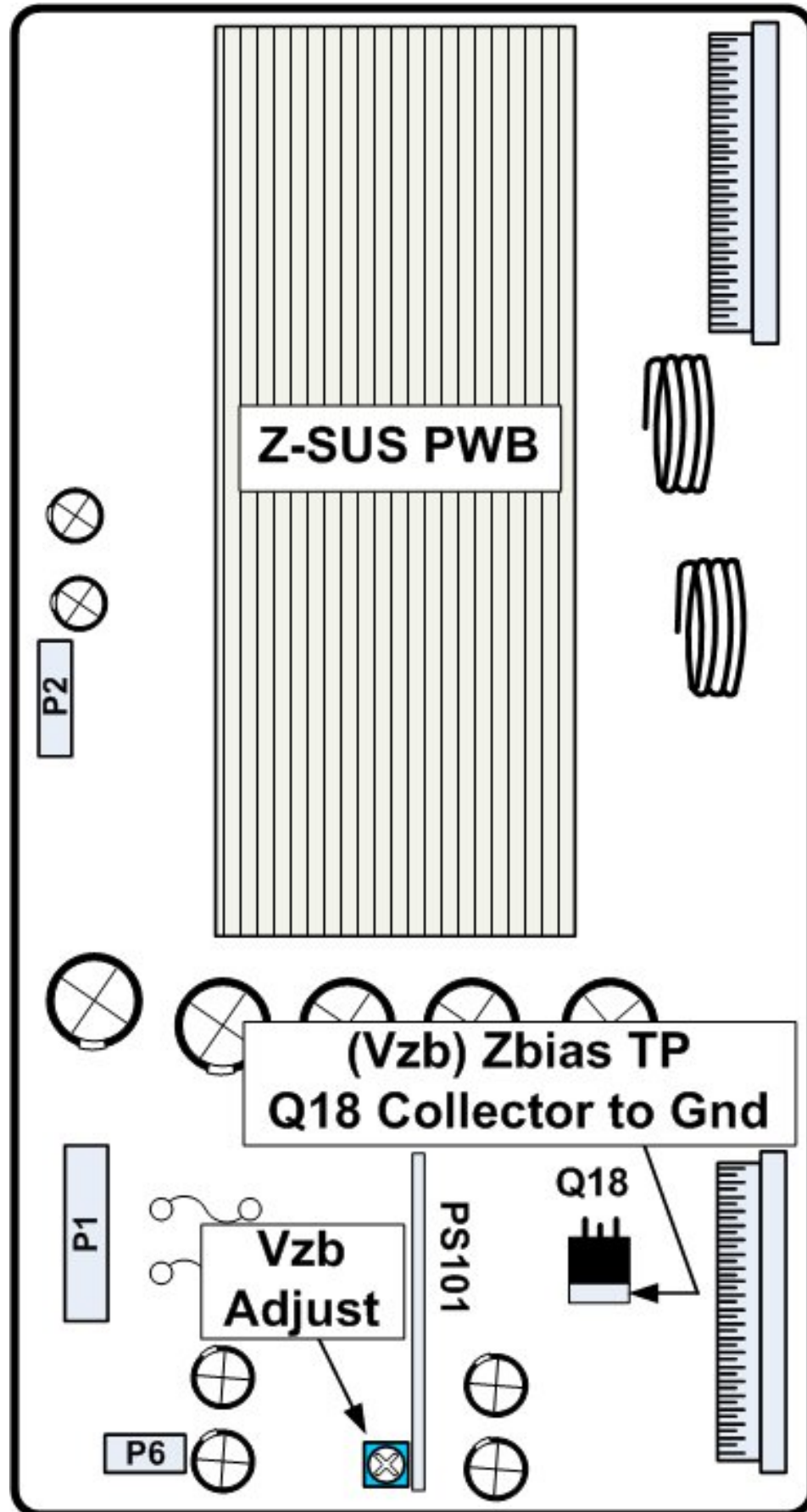**V Set-Up Adjustment:** Adjust **VR3** while observing area (A) and set to **150V ± 1V.**

V Set-Down Adjustment: Adjust **VR2** while observing area (B) and set to **10uSec ± 5uSec.**

Connect Scope to Waveform TP on Y-Drive PWB

Y Waveform

V Set-Up (Ramp) VR3 (A)

150V + 1V

0V

B

10 ± 5us   V Set-Down (Ramp Dn) VR2

Scope Settings	100V	100uS

Z-SUS Test Points and Adjustment Locations

42X3 PANEL

Z-SUS PWB

P2

P1

P6

PS101

Vzb Adjust

(Vzb) Zbias TP
Q18 Collector to Gnd

Q18

Z-SUS (Z-Bias Adjustment)
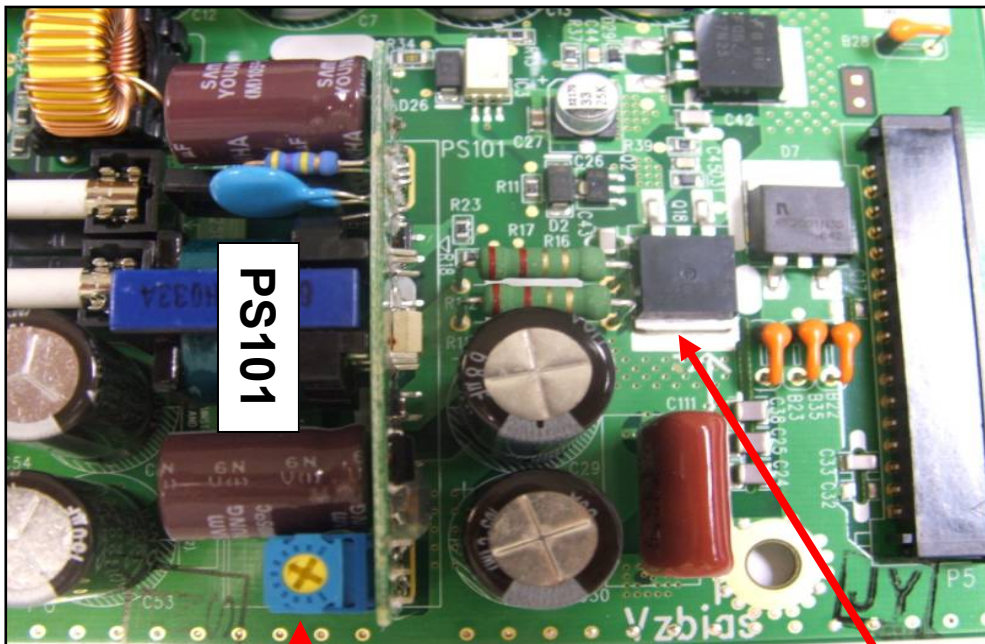
All other adjustments should have been completed.

Model : PDP 42X3###
All Voltage: DC (=) 5.2V
Va : 60V   Vs : 186V
186 / -200 / 120 / N.A. / 100
Max Watt : 300 W (Full White)

ZBias Adj

Full White Raster
Z-Bias Adjustment:
Adjust Z-Bias while reading the voltage between **Q18** Collector to chassis ground. Match your specific panel's Voltage Label.

PS101

Z-Bias
Adjustment

Measure VZBias from collector of Q18 to ground.

Bottom Center of the SMPS Board

42X4A PANEL

QUICK REFERENCE

ALIGNMENT SECTION

MODELS USING THE 42X4A PANEL

42PB2RRHML
42PB4D / DAA / DAUA / DNB / DR /
42PB4D DRNA / DRPNG / DTUB
42PB4RTMA / RTTB
42PC1D2 / D2NF / DB2 / DB2NF / DGAA
42PC35ZC
42PC3DA / DANA / DANG
42PC51ZB
42PC5D / DAB / DCNB / DDB / DNA / DNG / DUC / DUL /
DZB
42PC5RHTB / RTB / RZB
42PC7RAMA
42PT81ZB

LG

Life's Good

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42X4A SMPS PWB ADJUSTMENT POINTS

These two voltages are adjustable and should be adjusted to the correct values as indicated by the panel label.
Example shown in the outlined area below.
Always adjust "Highest to Lowest" voltages.
VS and VA adjustment resistors are shown in the drawing below.
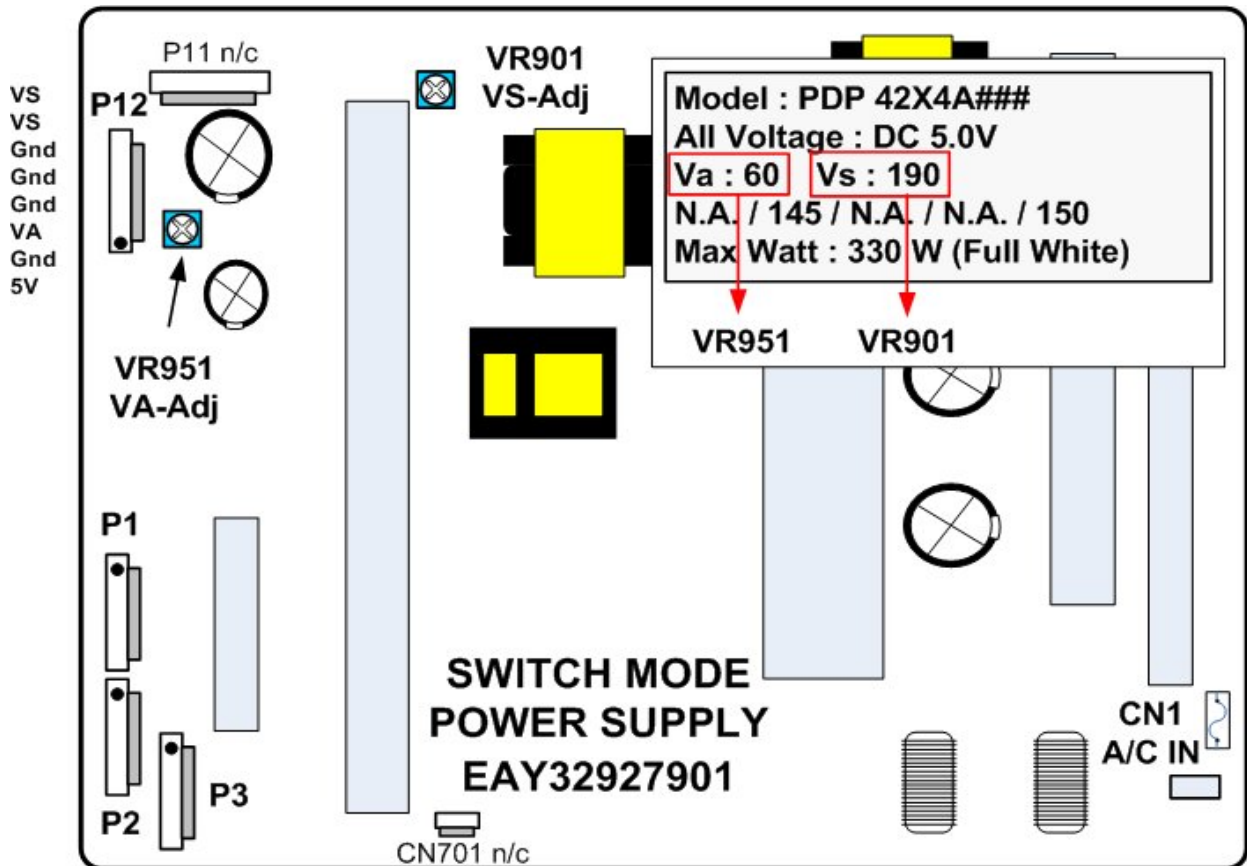They are located at the top left of the board.
VR901 is the VS adjustment pot.
VR951 is the VA adjustment pot.

Set should be in "Full White Raster"

1) **VS ADJUST:** Connect DVM to pin 7 or 8 of P12. Adjust VR901 until the voltage matches the panel's voltage label.

2) **VA ADJUST:** Connect DVM to pin 3 of P12. Adjust VR951 until the voltage matches the panel's voltage label.

42X4 PANEL

VR901 VS-Adj

P11 n/c
P12

VS
VS
Gnd
Gnd
Gnd
VA
Gnd
5V

VR951 VA-Adj

P1

P2 P3

CN701 n/c

SWITCH MODE
POWER SUPPLY
EAY32927901

CN1
A/C IN

Model : PDP 42X4A###
All Voltage : DC 5.0V
Va : 60   Vs : 190
N.A. / 145 / N.A. / N.A. / 150
Max Watt : 330 W (Full White)

VR951   VR901

42X4A SMPS PWB ADJUSTMENT POINTS

These two voltages are adjustable and should be adjusted to the correct values as indicated by the panel label.
Example shown in the outlined area below.
Always adjust "Highest to Lowest" voltages.
VS and VA adjustment resistors are shown in the drawing below.
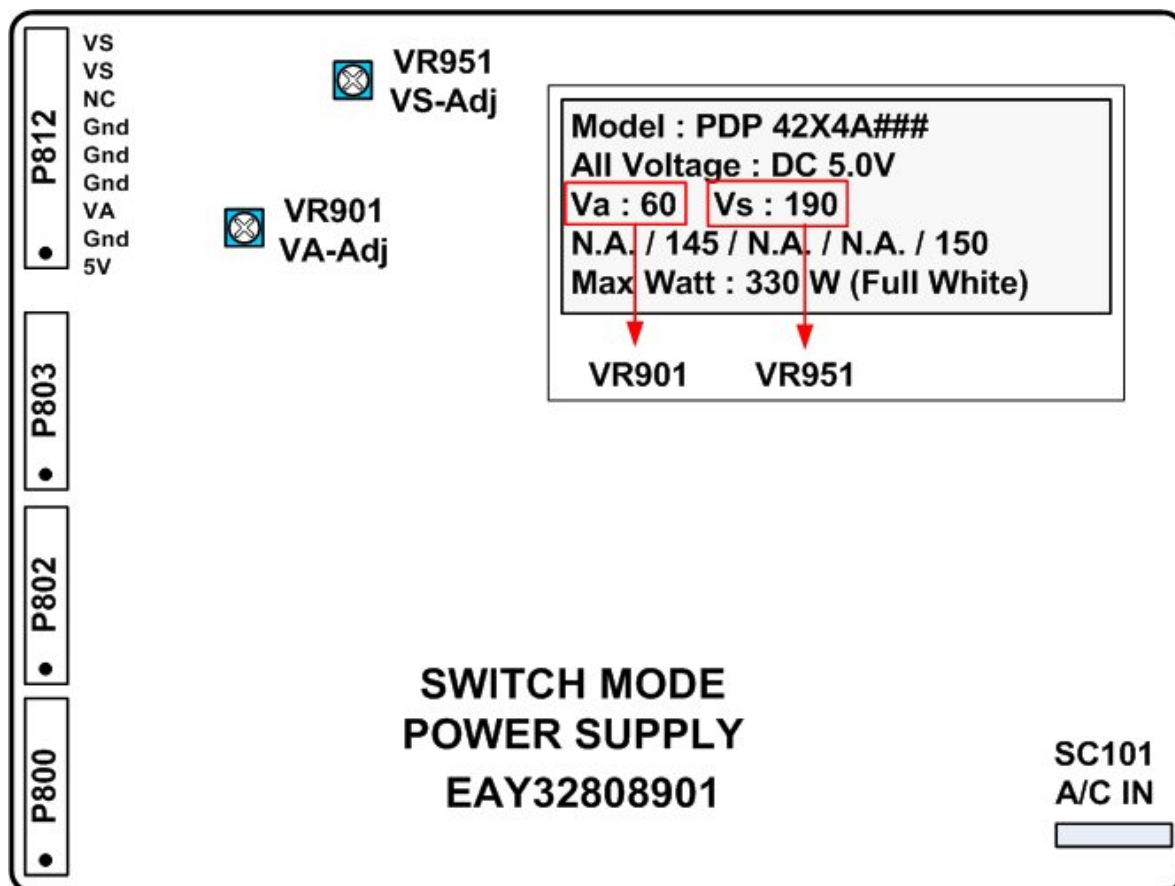They are located at the top left of the board.
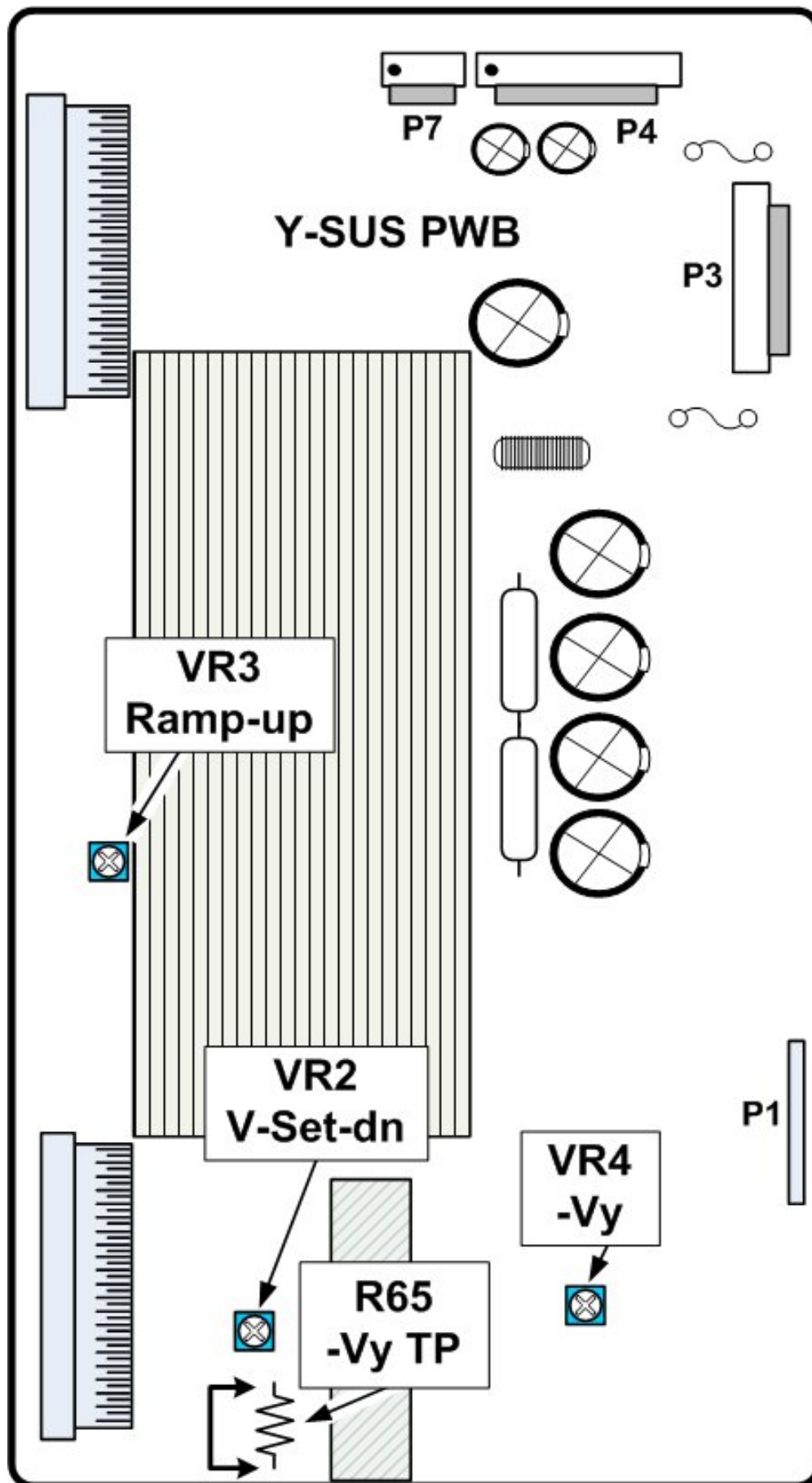VR951 is the VS adjustment pot.
VR901 is the VA adjustment pot.

Set should be in "Full White Raster"

1) **VS ADJUST:** Connect DVM to pin 8 or 9 of P812. Adjust **VR951** until the voltage matches the panel's voltage label.

2) **VA ADJUST:** Connect DVM to pin 3 of P812. Adjust **VR901** until the voltage matches the panel's voltage label.

42X4 PANEL

VR951 VS-Adj

VR901 VA-Adj

P812
VS
VS
NC
Gnd
Gnd
Gnd
VA
Gnd
5V

P803

P802

P800

Model : PDP 42X4A###
All Voltage : DC 5.0V
Va : 60   Vs : 190
N.A. / 145 / N.A. / N.A. / 150
Max Watt : 330 W (Full White)

VR901   VR951

SWITCH MODE
POWER SUPPLY
EAY32808901

SC101
A/C IN

42X4A Y-SUS PWB ADJUSTMENT POINTS

42X4 PANEL

Y-SUS PWB

P7

P4

P3

P1

**VR3
Ramp-up**

**VR2
V-Set-dn**

**R65
-Vy TP**

**VR4
-Vy**

# 42X4 –Vy Voltage Adjustment Locations

Model : PDP 42X4A###
All Voltage : DC 5.0V
Va : 60   Vs : 190
N.A. / 145 / N.A. / N.A. / 150
Max Watt : 330 W (Full White)

- VY

The -Vy voltages is adjustable
and should be adjusted to the
correct values as indicated by the panel label.
Example shown in the top right.

-Vy adjustment resistor **R65**
is shown in the picture below.
They are located bottom left of the board.

Adjust the -Vy (VR4) while reading across **R65** until voltage matches
label. (See previous page for location).
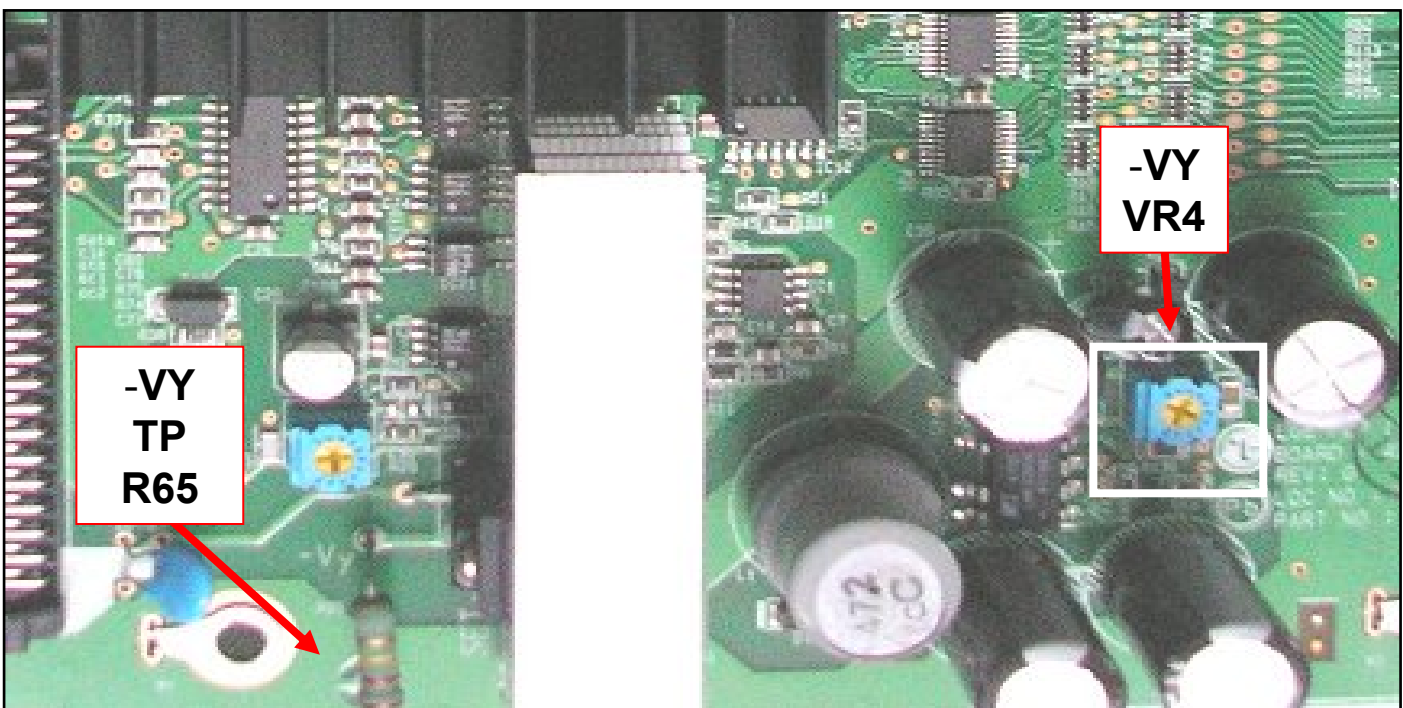
-VY
VR4

-VY
TP
R65

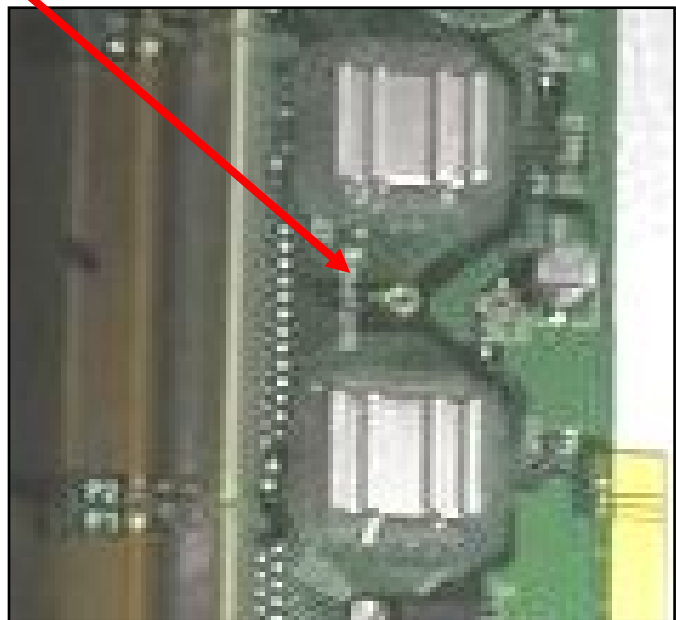# 42X4 Y Drive Waveform Test Point

(Fig. 1)

42X4 PANEL

Figure 1 shows the Y-Drive Board

Figure 2
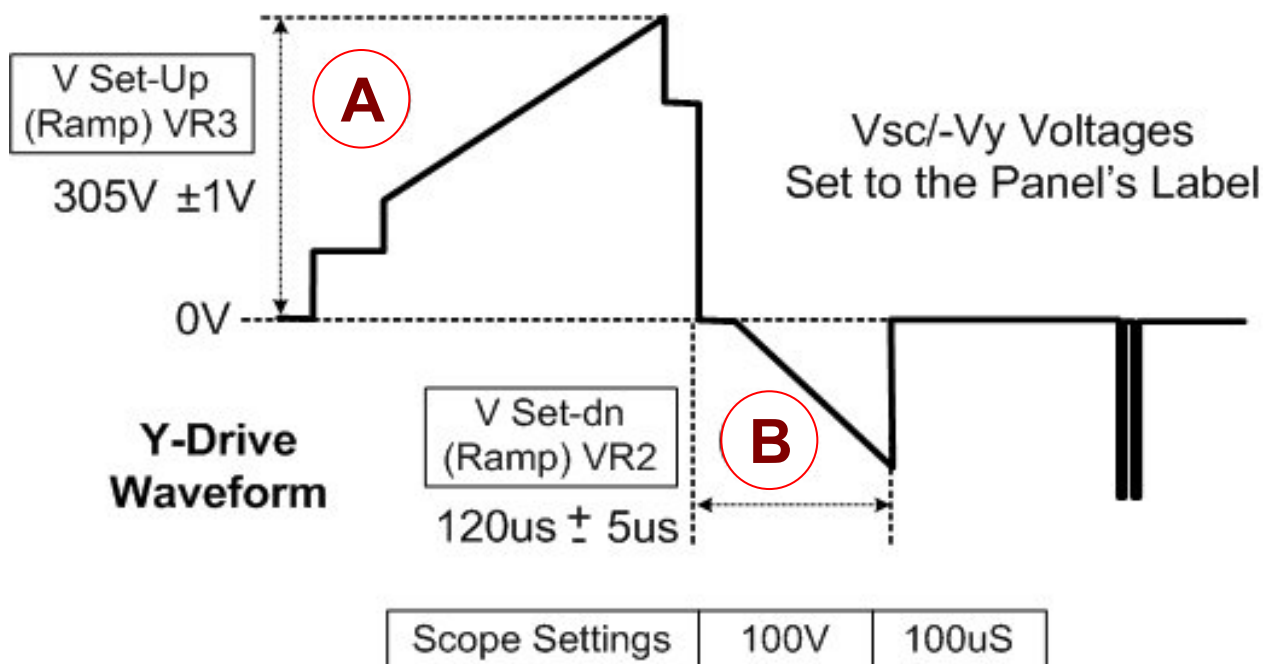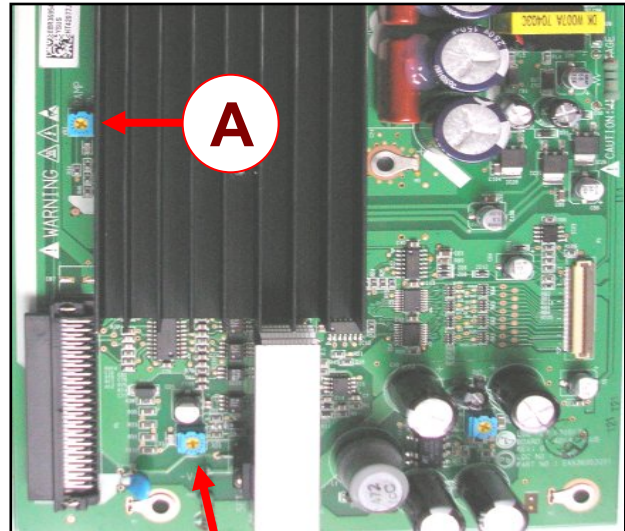Shows a close-up image of the Y-Drive waveform test point.

(Fig. 2)

42X4 Y-Drive Waveform Adjustment

Using a Full White Raster, adjust the Set-up and Set-dn section of the Y-Drive waveform. VS, VA, -Vy and VSC should have been completed.
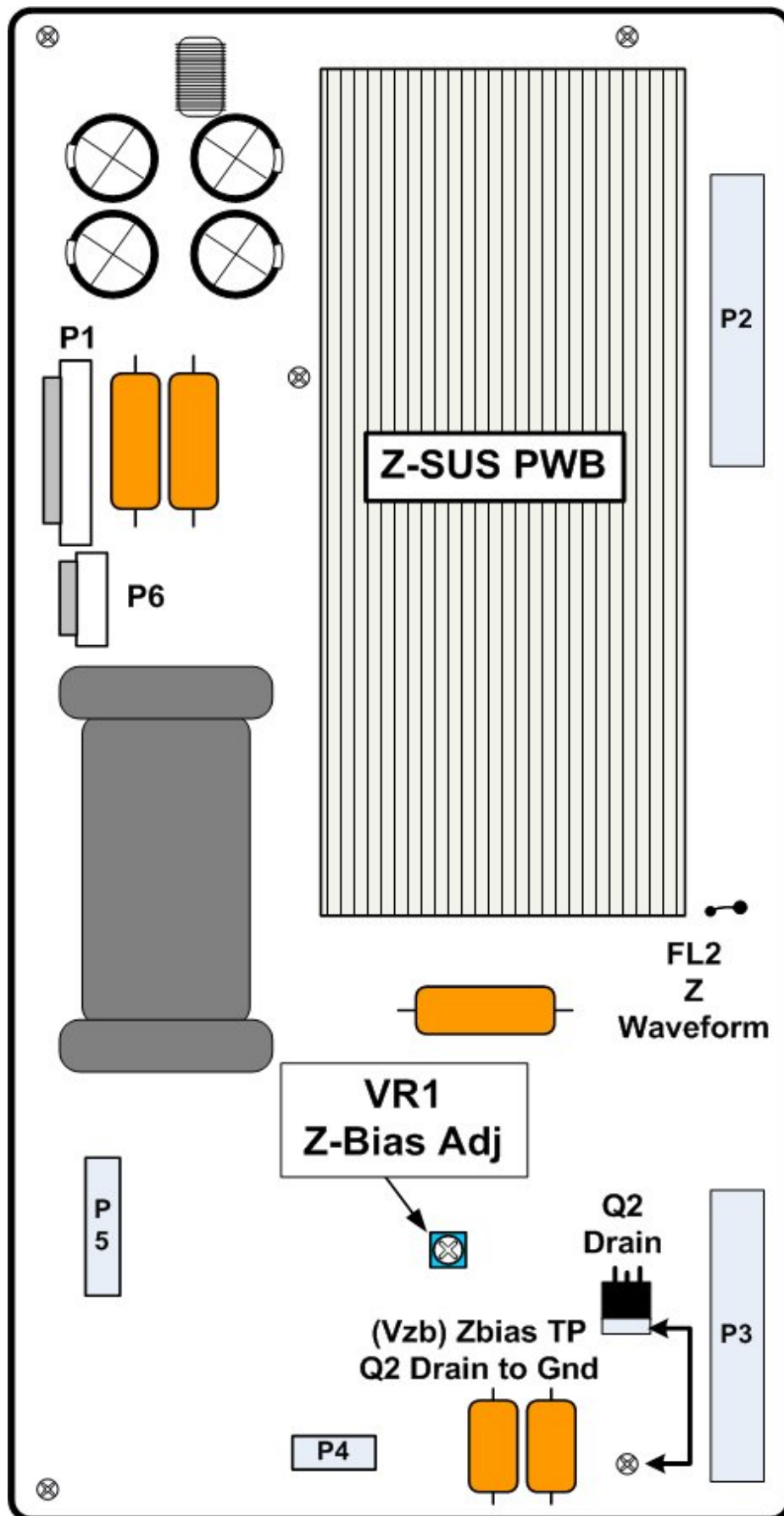
See Y-SUS Test Points and Adjustments diagram for locations.

Oscilloscope TP on the "Waveform" TP on the Y-Drive Board.

1) **Set-Up:** Adjust **VR3** while observing area (A) and set to 305V ± 1V.

2) **Set-Down:** Adjust **VR2** while observing area (B) and set to 120uSec ± 5uSec.

V Set-Up (Ramp) VR3
305V ±1V

0V

Y-Drive Waveform

V Set-dn (Ramp) VR2
120us ± 5us

Vsc/-Vy Voltages Set to the Panel's Label

Scope Settings	100V	100uS

42X4A Z-SUS BOARD ADJUSTMENT POINTS

42X4 PANEL

P1

P6

Z-SUS PWB

P2

FL2
Z
Waveform

VR1
Z-Bias Adj
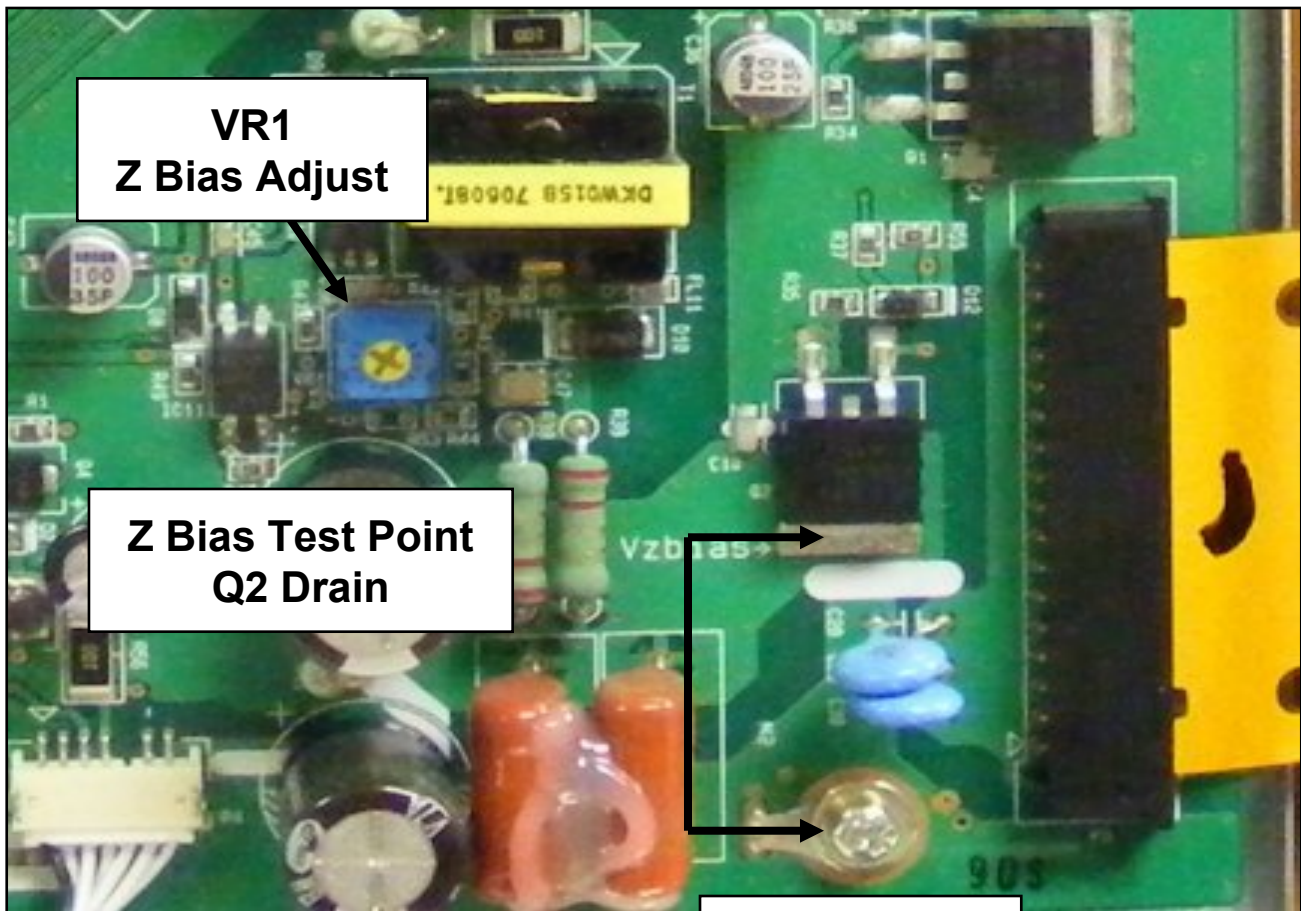
P5

Q2
Drain

(Vzb) Zbias TP
Q2 Drain to Gnd

P3

P4

42X4A Z-SUS BOARD ADJUSTMENT POINTS

All other adjustments should have been completed.

Full White Raster

1) Connect DVM between Q2 Drain and chassis ground

2) **Adjust Z-Bias** (VR1) to match the panel's voltage label.

Lower Right Hand Side of PWB

VR1
Z Bias Adjust

Z Bias Test Point
Q2 Drain

Chassis Gnd

42X4 PANEL

Measure Vzbias from Drain
of Q2 to Chassis Ground.

Model : PDP 42X4A###
All Voltage : DC 5.0V
Va : 60   Vs : 190
N.A. / 145 / N.A. / N.A. / 150
Max Watt : 330 W (Full White)

Z-Bias

50G1 PLASMA PANEL

QUICK REFERENCE

ALIGNMENT HAND BOOK

MODEL USING THE 50G1 PANEL

50PG20

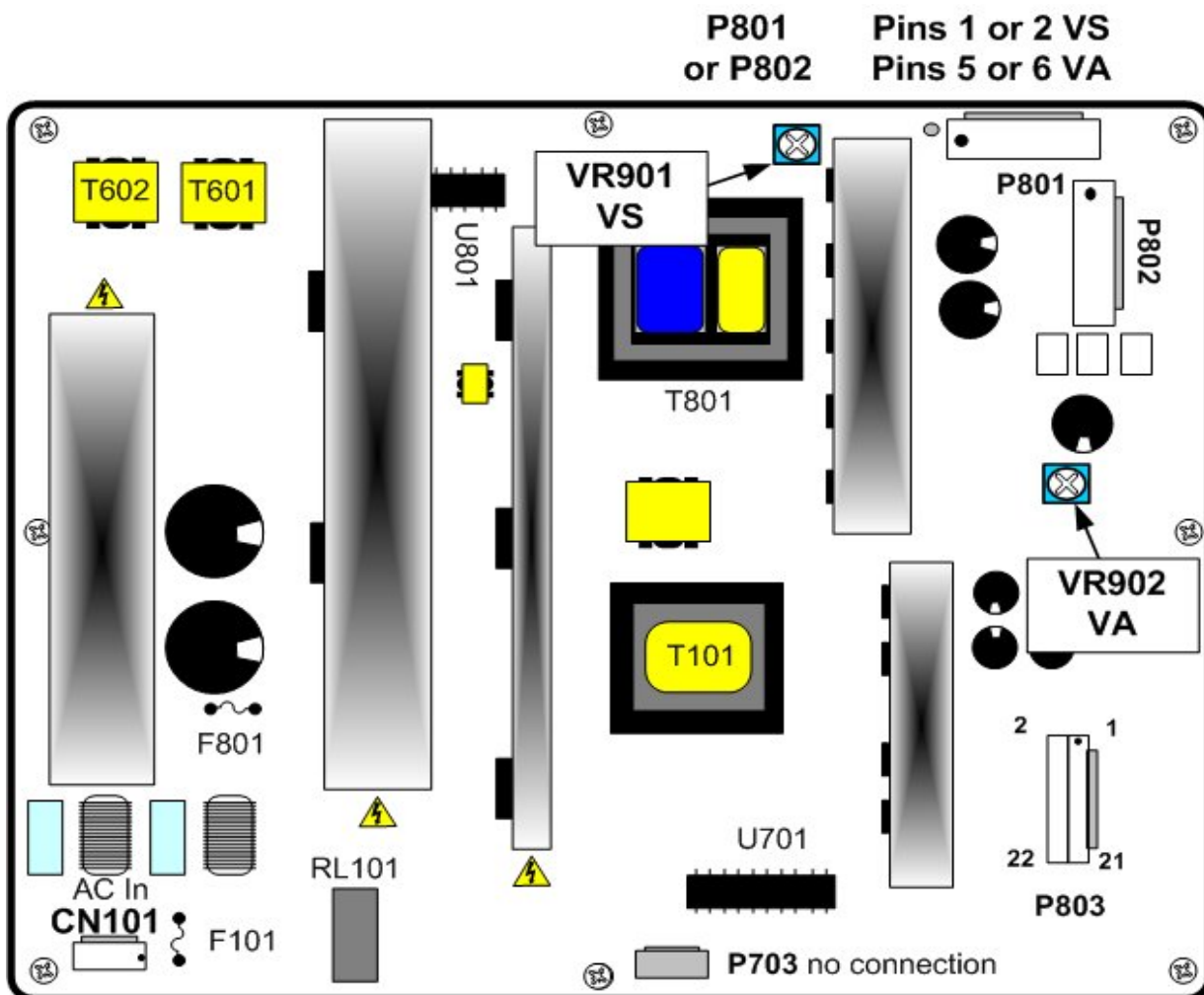Intentionally left blank

50G1 Vs / Va ADJUSTMENT

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
2) Place unit into White Wash from the Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as indicated on the panel voltage label in the upper left hand corner of the panel. See example above.**

Model : PDP 50G1####
Voltage Setting:5.2V / Va:65 / Vs:193
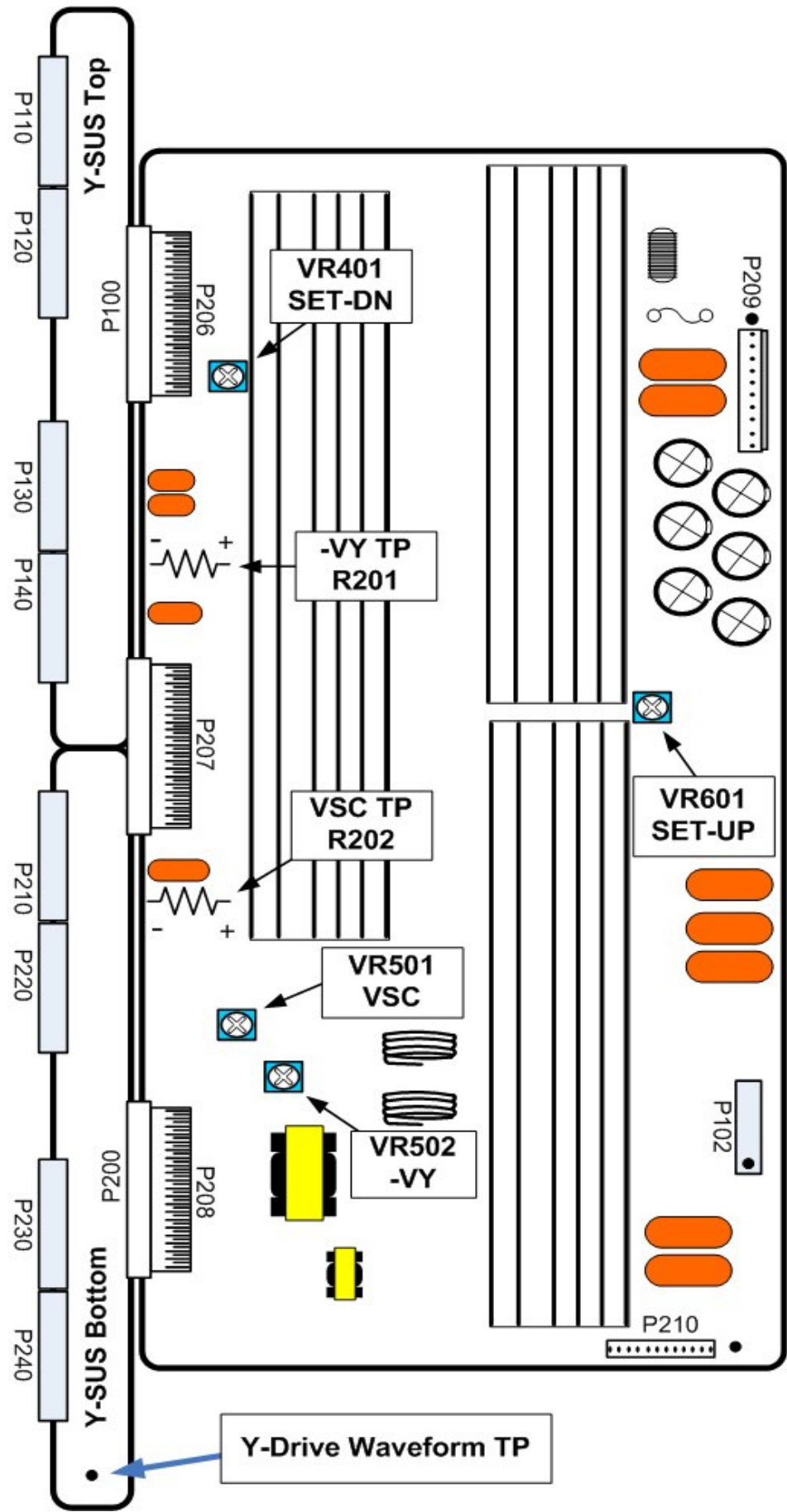N.A. / -195 / 135 / N.A. / 100
Max Watt : 500 W (Full White)

VA Adjust VR902   VS Adjust VR901

PROCEDURE: (See figure for locations)

1) **Adjust Vs** using **VR901**. Measured from Pin 1 or 2 **P801** to chassis ground. Match Panel Voltage label ±1V.
2) **Adjust Va** using **VR902**. Measured from Pin 5 or 6 **P801** to chassis ground. Match Panel Voltage label ±1V.

50G1 PANEL

50G1 Y-SUS BOARD ADJUSTMENT POINTS

VR401
SET-DN

-VY TP
R201

VSC TP
R202

VR601
SET-UP

VR501
VSC

VR502
-VY

Y-SUS Top

Y-SUS Bottom

Y-Drive Waveform TP

50G1 PANEL

P110
P120
P130
P140
P210
P220
P230
P240

P100
P200

P206
P207
P208

P209
P102
P210

50G1 -Vy / VSC ADJUSTMENT

PREPARATION:

Model : PDP 50G1####
Voltage Setting:5.2V / Va:65 / Vs:193
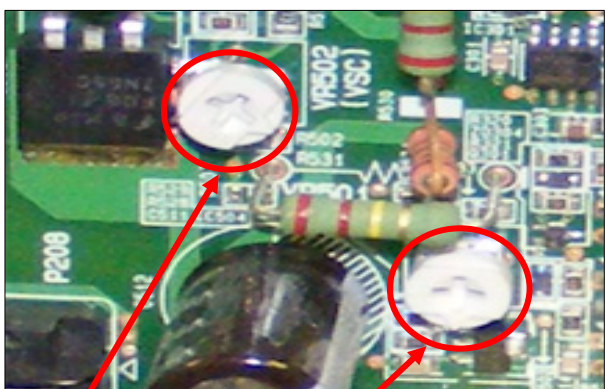N.A. / -195 / 135 / N.A. / 100
Max Watt : 500 W (Full White)

-Vy   VSC

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
2) Place unit into White Wash from the Customer's Menu for all adjustments.
3) Be sure to use all adjustment values as indicated on the panel voltage label in the upper left hand corner of the panel. See example to the upper right.

PROCEDURE: (See previous page for locations)

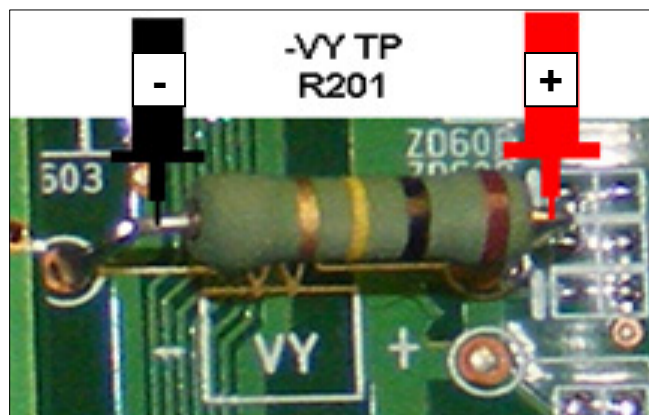**1) Adjust -Vy using VR501**. Measured across **R201**.
Match Panel Voltage label ±1V.
2) Adjust VSC using VR502. Measured across **R202**.
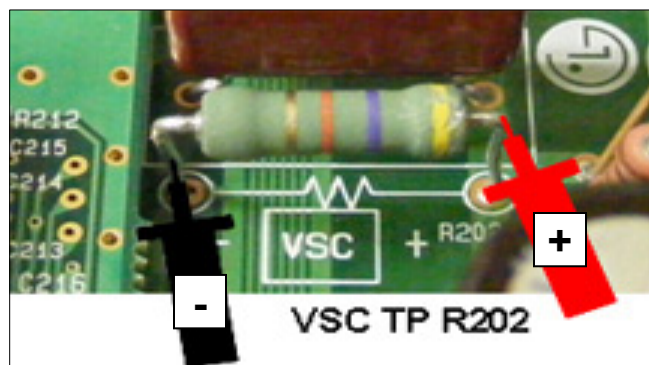Match Panel Voltage label ±1V.

VSC ADJ VR502

-VY ADJ VR501

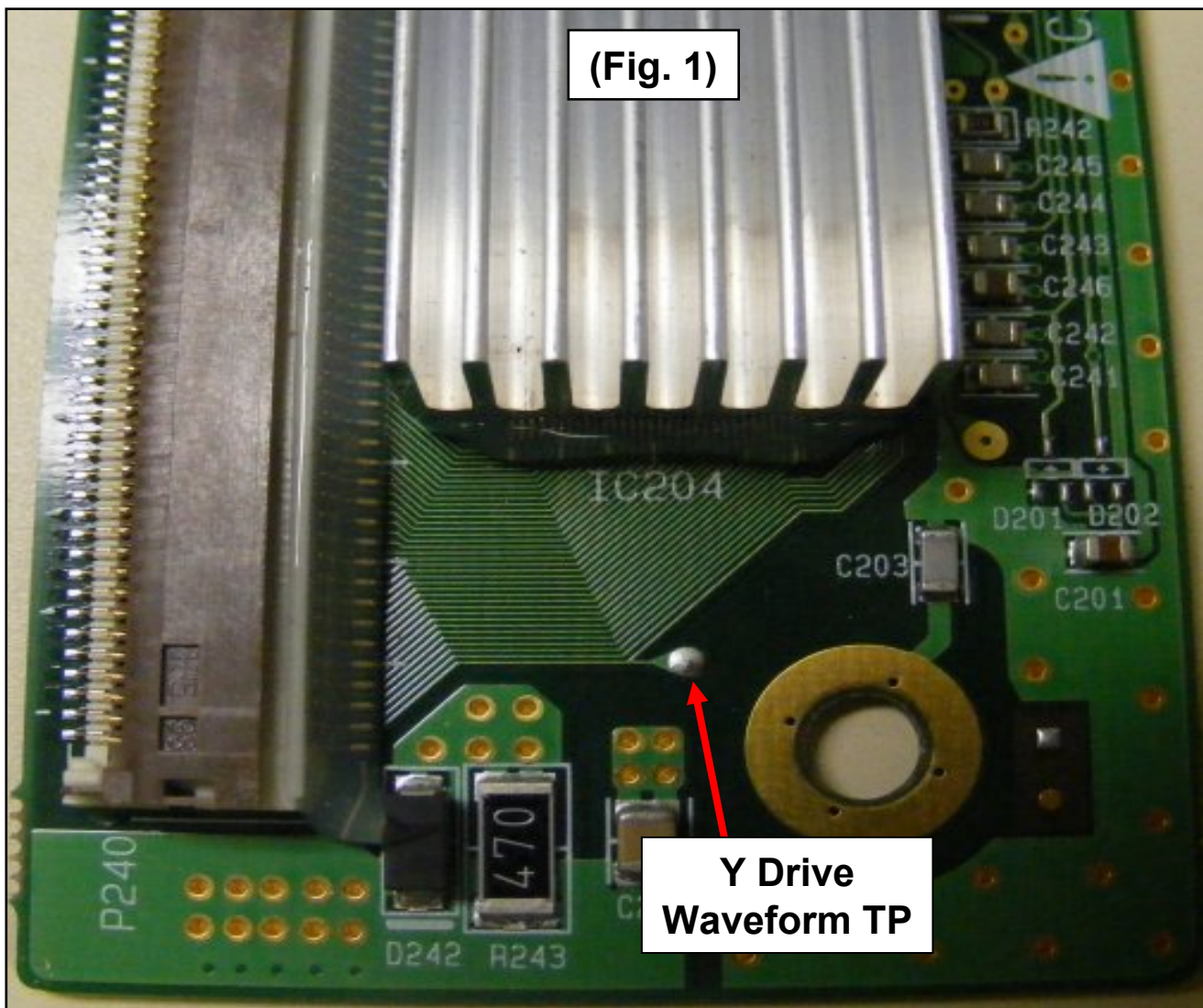*Lower Left Side of Board*

Upper Left Side Of PWB

Lower Left Side Of Board

50G1 Y Drive Waveform Test Point

Figure 1 shows the Y-Drive Waveform Test Point on the Y-Drive PWB. Indicated by the Arrow. There are several test points that can be used, but they are not marked. Look just above and below each output buffer. Three of the heat sinks will have test points just like the one below.
Use this TP for alignment of the Y-Drive signal using Set-Up and Set-Down adjustments shown on the next page.
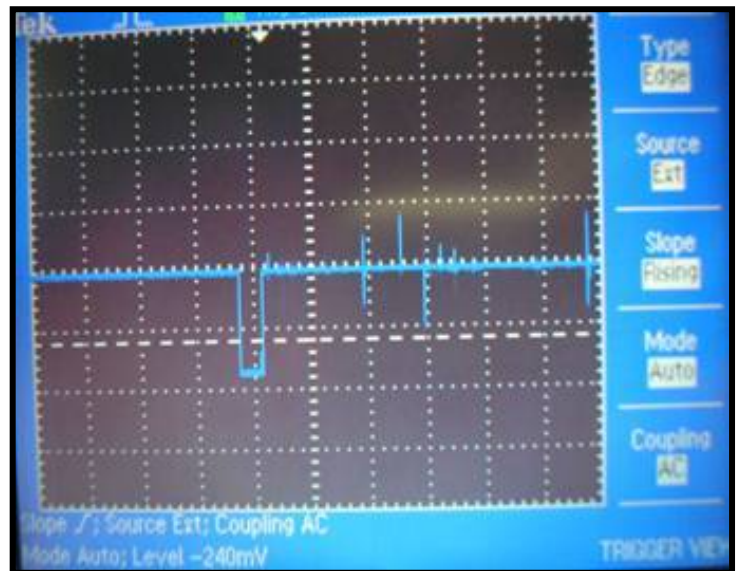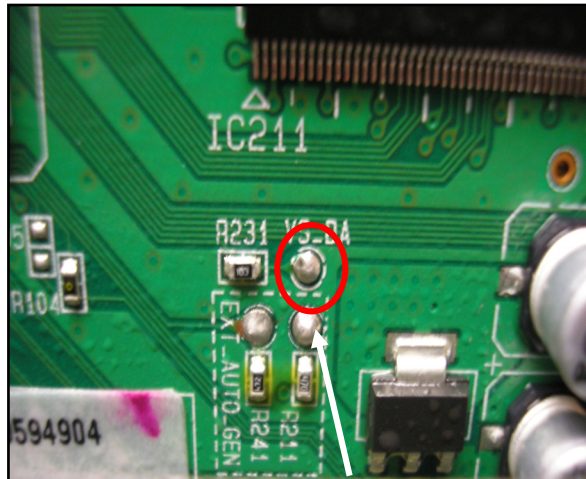
(Fig. 1)

**Y Drive
Waveform TP**

Bottom of the Y-Drive board.

50G1 PANEL

Observing the Y-SUS and Z-SUS Output Waveforms

External Triggering of the Oscilloscope allows for a Stable Display of both the Y and Z SUS Output Waveforms regardless of how distorted the waveforms may be, allowing the wave shape and phasing to be easily examined.

To set the Oscilloscope up for External Trigger first connect a Scope Probe set on direct to the External Input Jack. Next set the External Jack for AC Coupling either positive or negative slope, use the Trigger Menu on the Scope. Finally you will need to set the Trigger Level press the Trigger View and set the level as indicated in the picture below.

Trigger Level Adjust

VS_DA Located on the Control Board just above the AUTO Gen Test Points may be used as an external trigger source for locking the waveform on the Oscilloscope

50G1 Y-DRIVE WAVEFORM ADJUSTMENT

PRELIMINARY:

Adjustment locations for adjusting the Y-Drive waveform on the Y-SUS PWB shown below.

See Y-SUS Test Points and Adjustments diagram for detailed locations. (4 pages back).
See next page for Adjustment specifications.

Right Center Top of PWB	Upper Left of PWB

Set-Up
VR601

A

Set-Dn
VR401

B

50G1 PANEL

50G1 Y-SUS ADJUSTMENT PREPARATION:

PREPARATION:

*Be sure to use all adjustment values as indicated on the panel voltage label in the upper left hand corner of the panel.
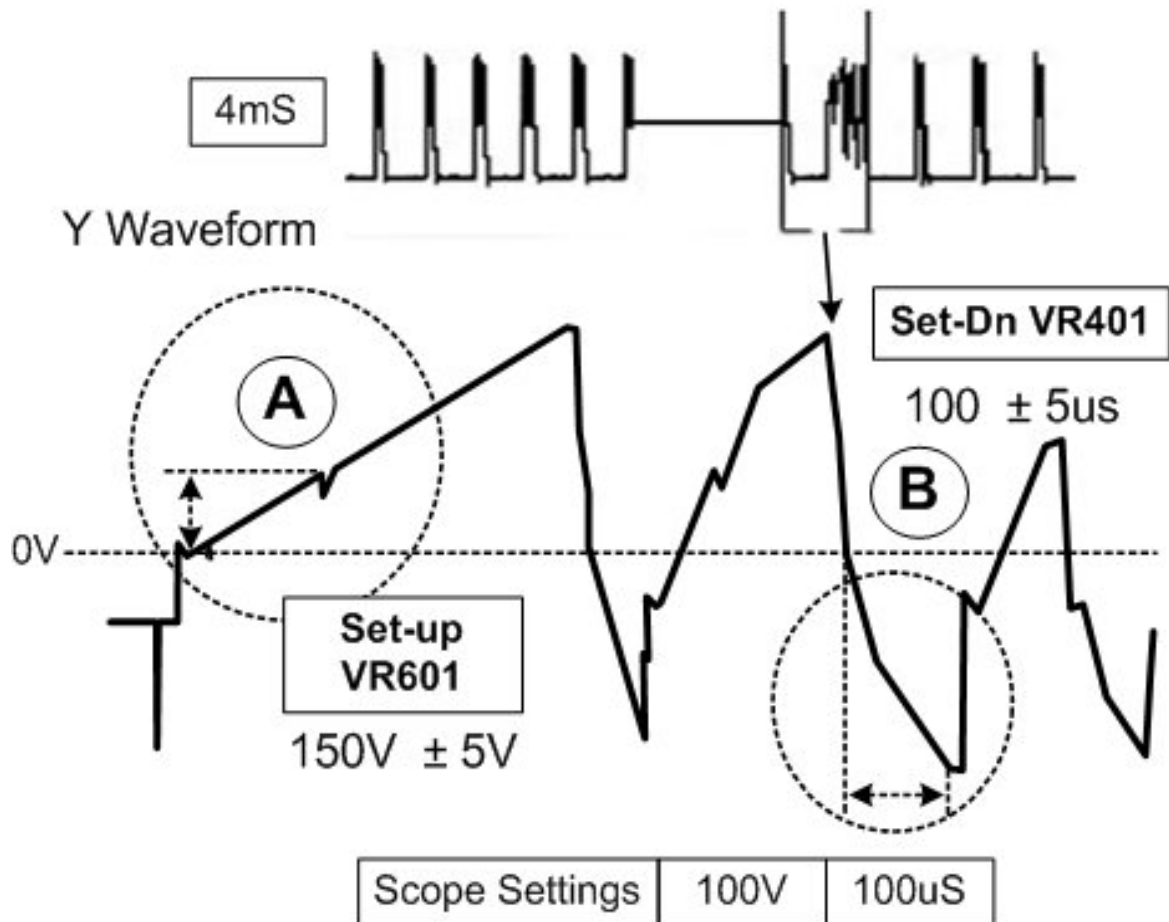
NOTE: All DC adjustments must be corrected prior to Adjustment of the Y-Drive waveform.

Connect scope to Waveform TP. (Shown 3 pages back)

PROCEDURE:
(See preceding page for adjustment locations)

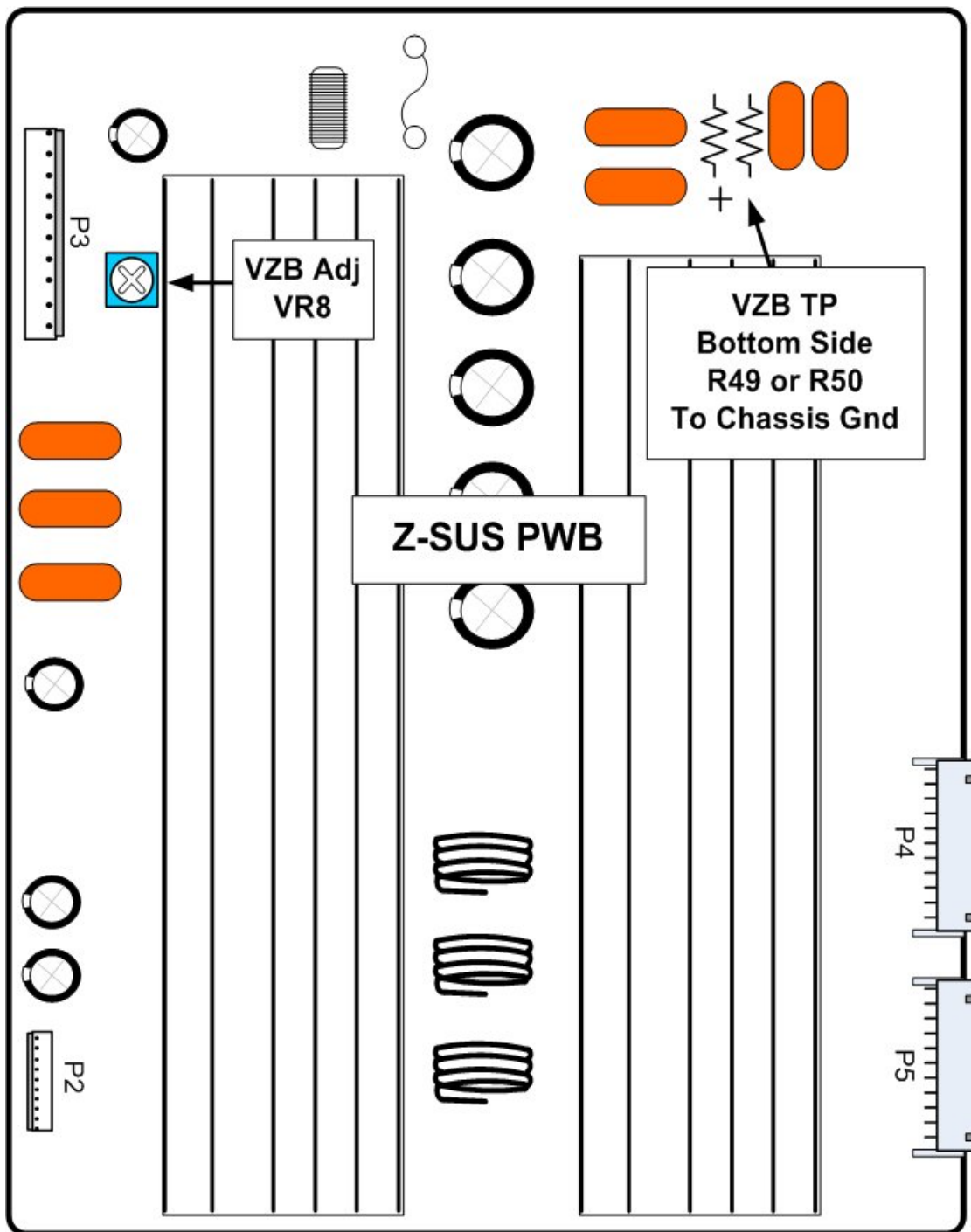1) **SET-UP:** Adjust SET-UP VR601 until point "A" in diagram below is 150V pp ± 5V

2) **Set-DOWN**: Adjust SET-DOWN until point "B" in diagram below is 100uSec ±5uS.

4mS

Y Waveform

Set-Dn VR401

100 ± 5us

A

B

0V

Set-up
VR601

150V ± 5V

Scope Settings	100V	100uS

If V-Set-Dn exceeds 120us the unit will shut down.
If this occurs remove LVDS cable and readjust V-Set-Dn.

50G1 PANEL

50G1 Z-SUS BOARD ADJUSTMENT POINTS

P3

VZB Adj
VR8

VZB TP
Bottom Side
R49 or R50
To Chassis Gnd

Z-SUS PWB

P2

P4

P5

50G1 PANEL

For Z-Waveform, attach scope to Z-SUS TP.
Any bottom leg of any capacitor on the Z-SUB board.
Be care, these legs are close together.
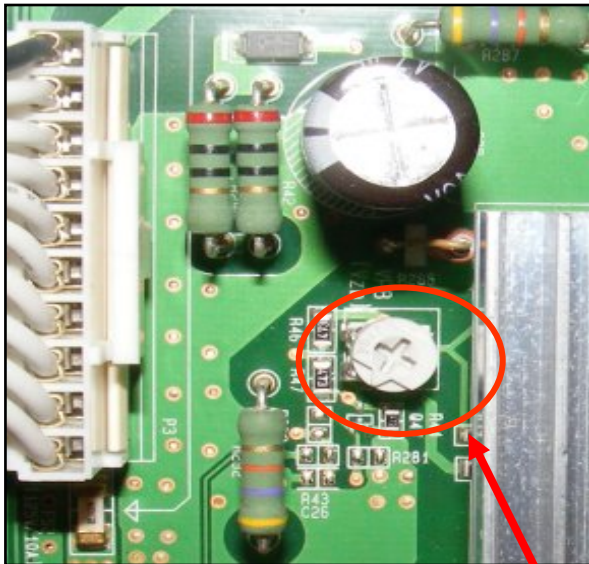
50G1 Zbias ADJUSTMENT

PREPARATION:

1) Pre-Heat unit for at least
   10 Minutes before making
   adjustments.
2) Place unit into White Wash from the
   Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as
   indicated on the panel voltage label in the
   upper left hand corner of the panel. See example above.**
PROCEDURE: (See figures for locations)
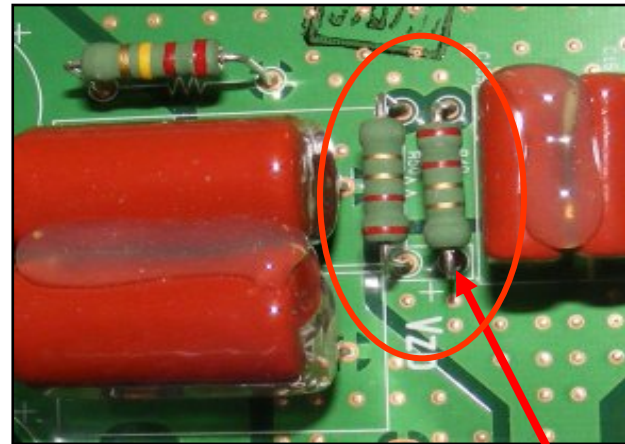
1) Adjust Zbias using VR8. Measured from the bottom side
   of R49 or R50 to chassis ground.
   Match Panel Voltage label ±1V.

Model : PDP 50G1####
Voltage Setting:5V / Va:60V / Vs:194V
N.A. / -175 / 140 / N.A. / 80
Max Watt : 330 W (Full White)

Z Bias

50G1 PANEL

**Z Bias Adj
VR8**

**Z Bias TP
Bottom of
R49 or R50
To Chassis Gnd.**

Top Side Of Board

Intentionally left blank

50G2 PLASMA PANEL

QUICK REFERENCE

ALIGNMENT HAND BOOK

MODEL USING THE 50G2 PANEL

50PQ20
50PQ30

LG

Life's Good

Intentionally left blank

50G2 Vs / Va ADJUSTMENT

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
2) Place unit into White Wash from the Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as indicated on the panel voltage label in the upper left hand corner of the panel. See example above.**

Model : PDP 50G2####
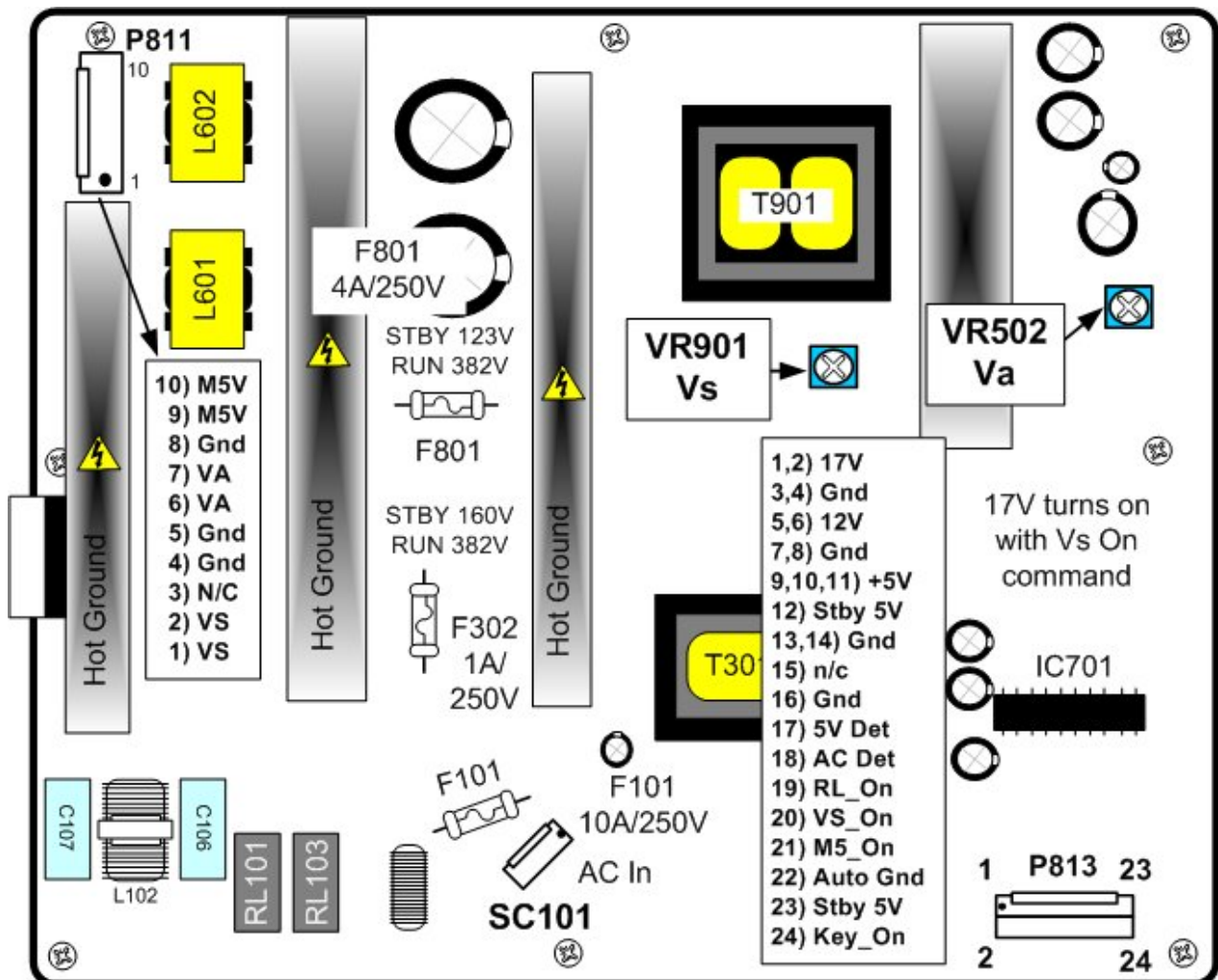Voltage Setting:5V / Va:60V / Vs:193V
N.A. / -185 / 133 / N.A. / 80
Max Watt : 350 W (Full White)

VA Adjust VR502

VS Adjust VR901

PROCEDURE: (See figure for locations)

1) Adjust Vs using VR901. Measured from Pin 1 or 2 P811 to chassis ground. Match Panel Voltage label ±1V.
2) Adjust Va using VR502. Measured from Pin 6 or 7 P811 to chassis ground. Match Panel Voltage label ±1V.

50G2 PANEL

50G2 Y-SUS BOARD ADJUSTMENT POINTS

VR601
SET-UP

VR501
VSC

-Vy TP
R201

VR502
-Vy

VR401
SET-DN

VSC TP
R202

C214

C213

D503

D602

T501

IC503

IC502

D501

Q603

IC303

T502

50G2 PANEL

50G2 -Vy / VSC ADJUSTMENT

PREPARATION:

Model : PDP 50G2####
Voltage Setting:5V / Va:60V / Vs:193V
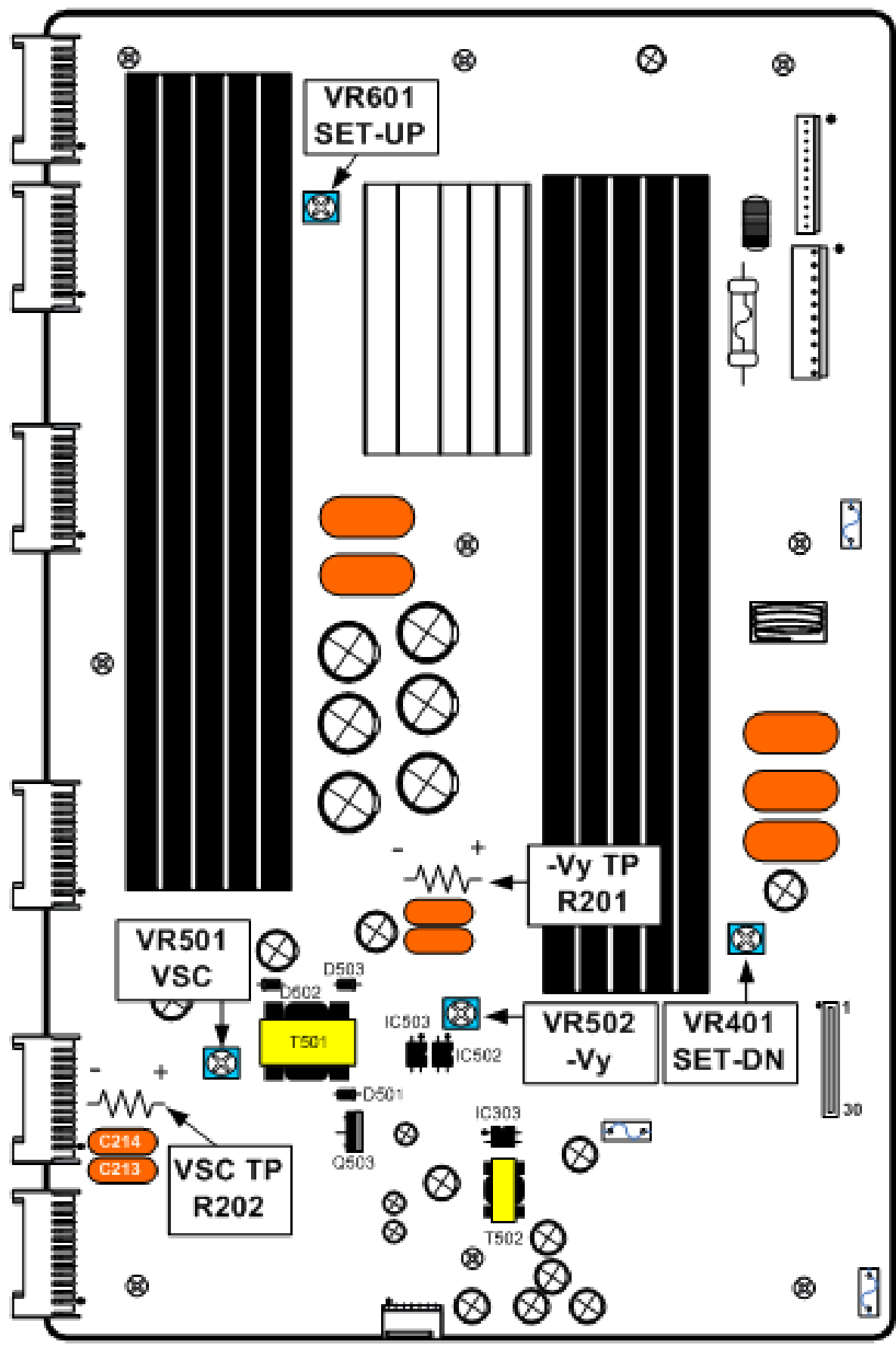N.A. / -185 / 133 / N.A. / 80
Max Watt : 350 W (Full White)

-Vy   VSC

1) Pre-Heat unit for at least 10 Minutes
   before making adjustments.
2) Place unit into White Wash from the
   Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as indicated on the
   panel voltage label in the upper left hand corner of the
   panel. See example to the upper right.**

PROCEDURE: (See previous page for locations)

1) **Adjust -Vy using VR502**. Measured across **R201**.
   Match Panel Voltage label ±1V.

2) **Adjust VSC using VR501**. Measured across **R202**.
   Match Panel Voltage label ±1V.

-Vy TP R201
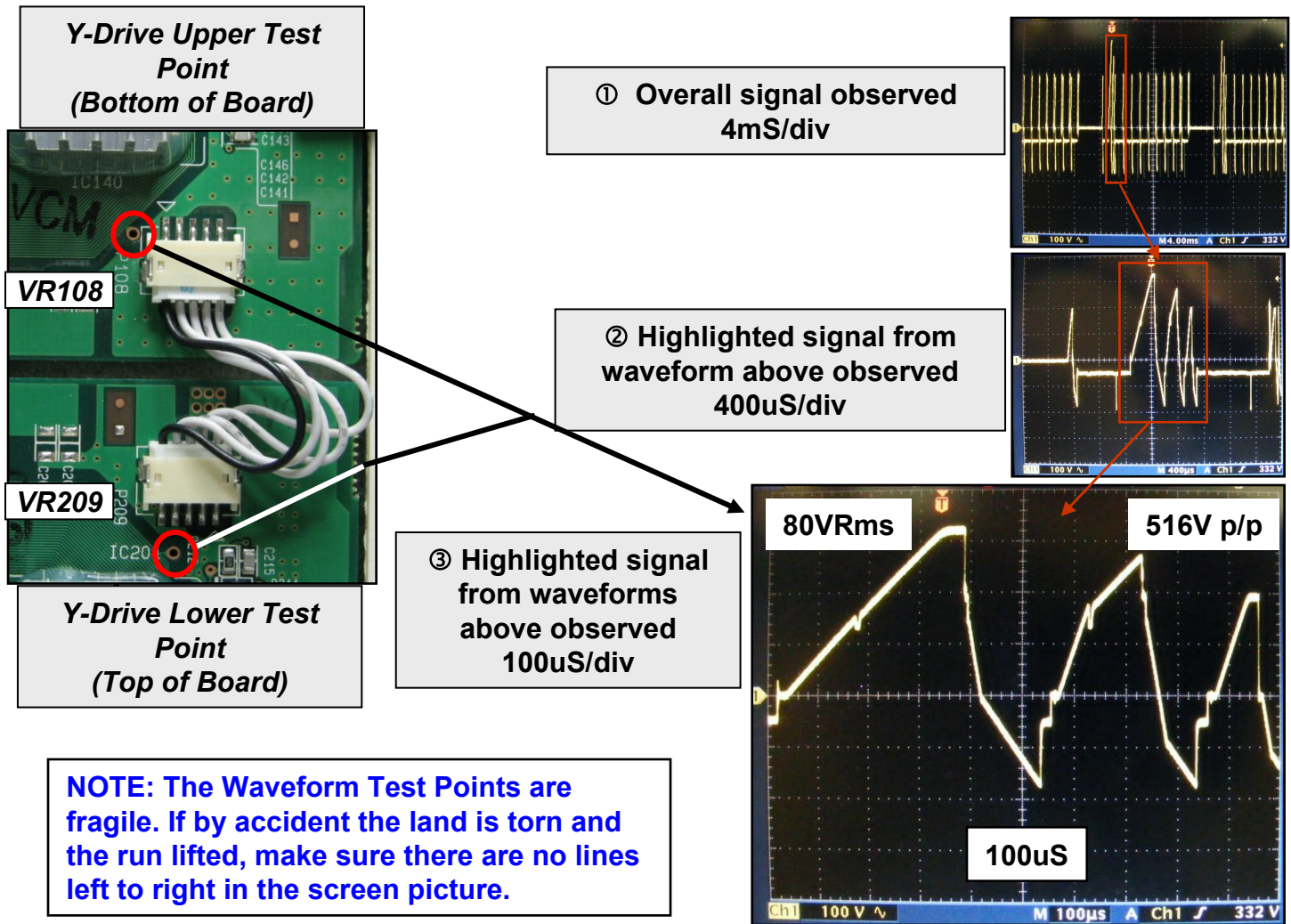
VSC TP
R202

VR502

VR501
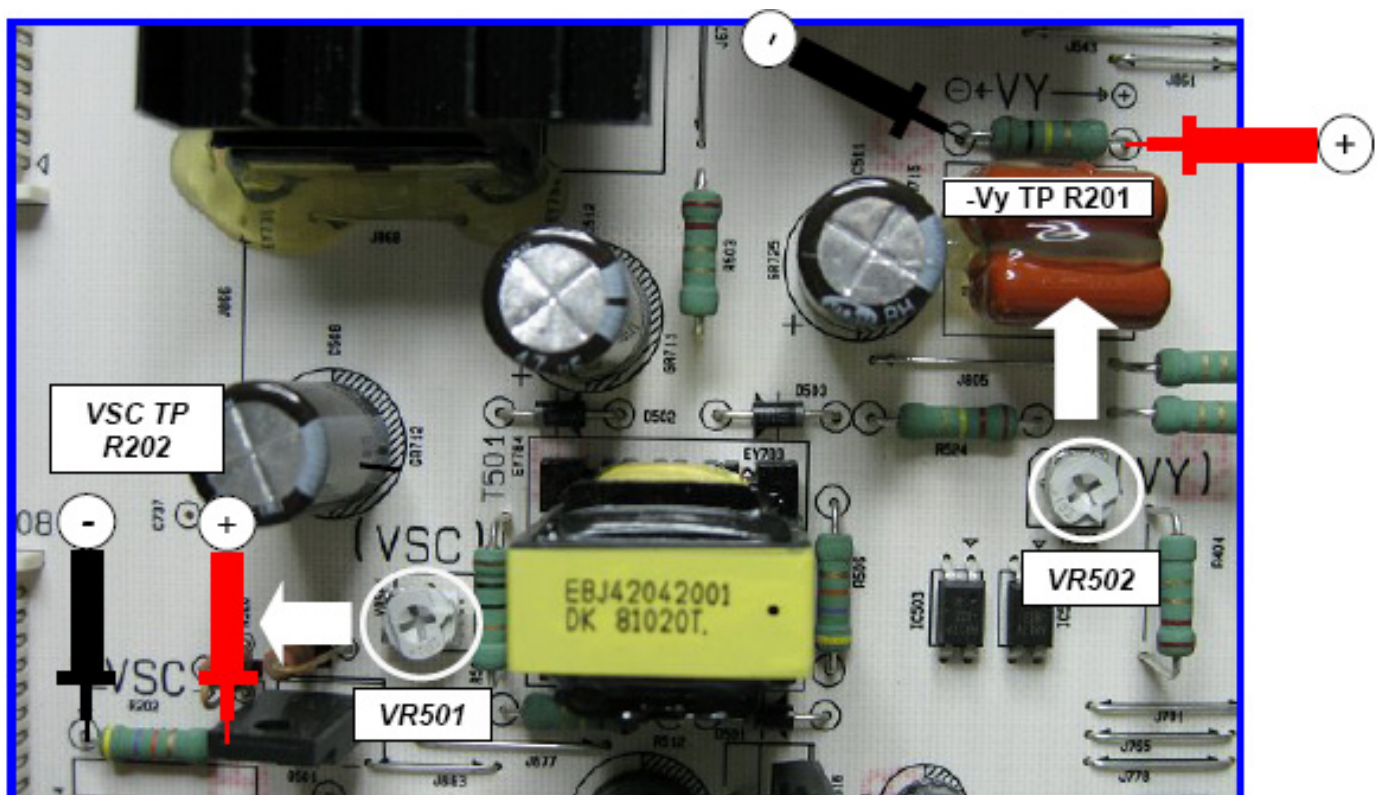
Lower portion of the board

50G2 Y Drive Waveform Test Point

The Figure below shows the Y-Drive Waveform Test Points on the Y-Drive boards. Indicated by the circles. There are several test points that can be used, but they are not marked. Look just above and below each output buffer.

Use this TP for alignment of the Y-Drive signal using Set-Up and Set-Down adjustments shown on the next page.

(Fig. 1)

There are several other test points on either the Upper or Lower Y-Drive boards that can be used.
Basically any output pin on any of the FPC to the panel are OK to use.

Y-Drive Upper Test Point
(Bottom of Board)

VR108

VR209

Y-Drive Lower Test Point
(Top of Board)

① **Overall signal observed 4mS/div**

② **Highlighted signal from waveform above observed 400uS/div**

③ **Highlighted signal from waveforms above observed 100uS/div**

80VRms

516V p/p

100uS

NOTE: The Waveform Test Points are fragile. If by accident the land is torn and the run lifted, make sure there are no lines left to right in the screen picture.

50G2 PANEL

## Observing the Y-SUS and/or Z-SUS Output Waveforms

External Triggering of the Oscilloscope allows for a Stable Display of both the Y-SUS and Z SUS Output Waveforms. Regardless of how distorted the waveforms may be, using this TP will assist in locking the scope, allowing the wave shape and phasing to be easily examined.

To set the Oscilloscope up for External Trigger first connect a Scope Probe set on direct to the External Input Jack.
Next set the External Jack for AC Coupling either positive or negative slope, use the Trigger Menu on the Scope.
Finally you will need to set the Trigger Level press the Trigger View and set the level as indicated in the picture below.

Trigger Level Adjust
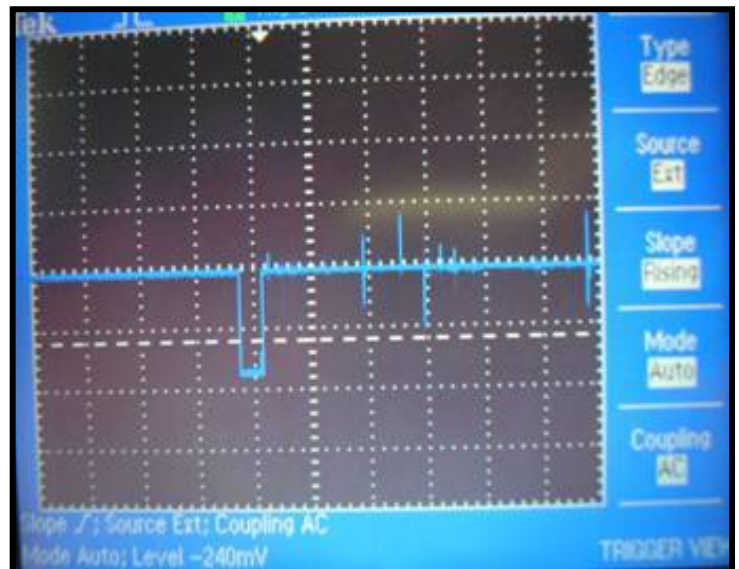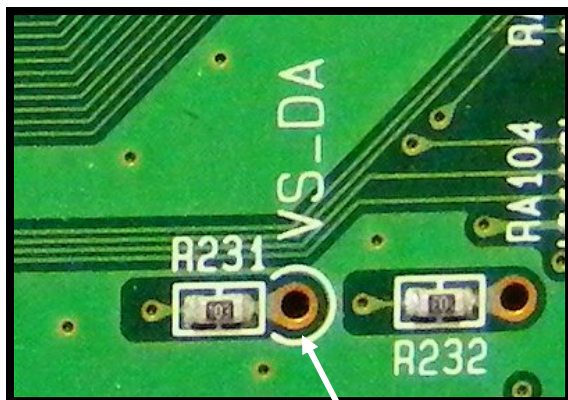
VS_DA Located on the Control Board just above the AUTO
Gen Test Points. This TP may be used as an external trigger source for locking the waveform on the Oscilloscope

50G2 Y-DRIVE WAVEFORM ADJUSTMENT

PRELIMINARY: Set must be in "WHITE WASH"
All other DC Voltage adjustments should have already been made.
Adjustment locations for adjusting the Y-Drive waveform are on the Y-SUS board.
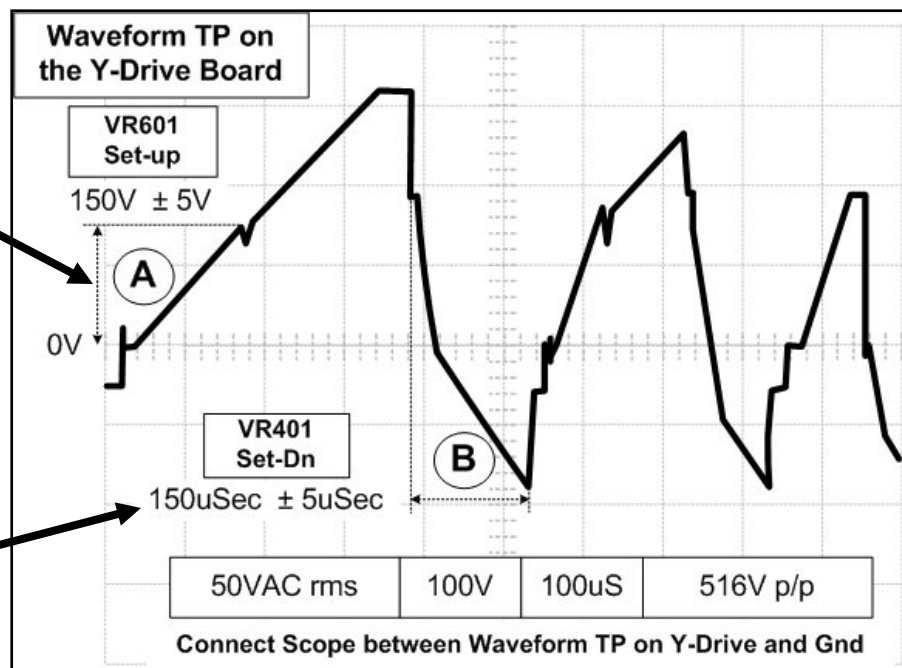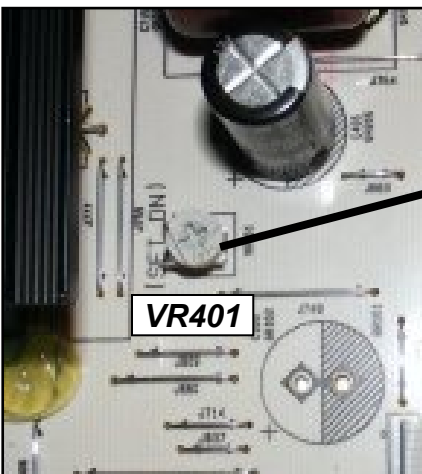See Y-SUS Test Points and Adjustments diagram for detailed locations.
(4 pages back).

SET-UP ADJUST:
1) Adjust **VR601** and set the **(A)** portion of the signal to match the
   waveform below. (150V ± 5V)

SET-DN ADJUST:
2) Adjust **VR401** and set the **(B)** time of the signal to match the
   waveform below. (150uSec 5uSec)
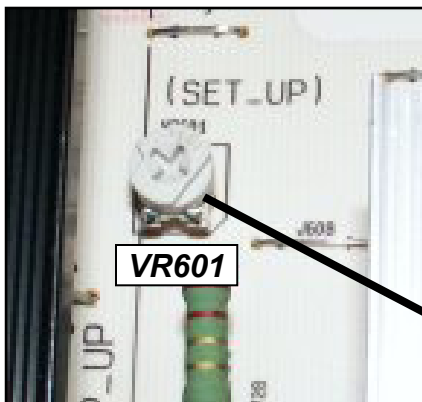
VR601

VR401

ADJUSTMENT LOCATIONS:
Top Left VR601.
Center Right VR401

Waveform TP on
the Y-Drive Board

VR601
Set-up

150V ± 5V

Ⓐ

0V

VR401
Set-Dn   Ⓑ

150uSec ± 5uSec

50VAC rms	100V	100uS	516V p/p

Connect Scope between Waveform TP on Y-Drive and Gnd

50G2 PANEL

50G2 Z-SUS BOARD ADJUSTMENT POINTS

50G2 PANEL

P101

Z-Bias TP
Top of R271 or R272
To Chassis Ground

FS100
M5V

FS102
Vs

P104
FPC

Z-Bias
VR200

FS100
M5V

Z-SUS
Waveform
Test Point
J27

P105
FPC

P100

P103

FS101
17V
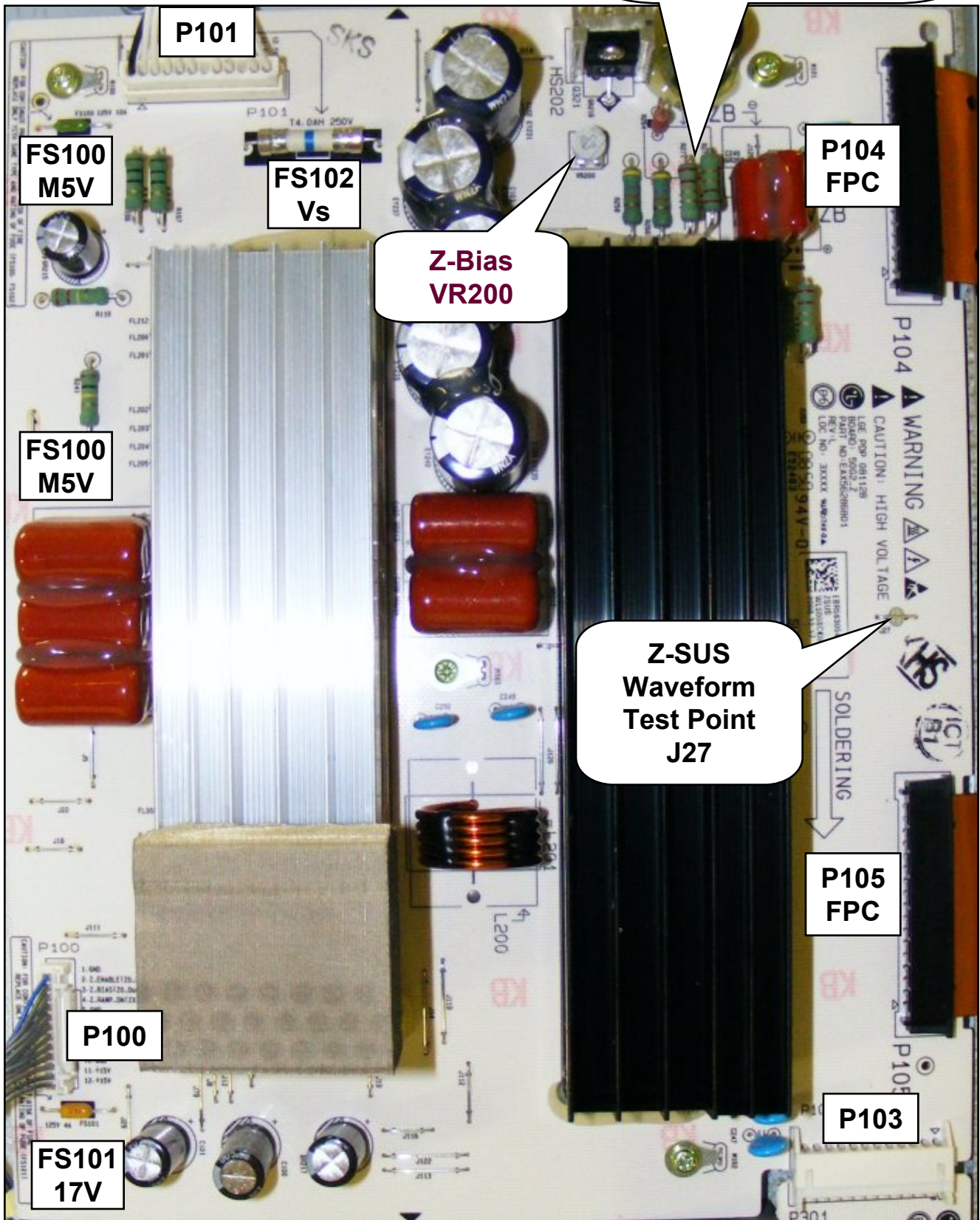
50G2 Z-SUS Z BIAS (VZB) ADJUSTMENT

PRELIMINARY: Set must be in "WHITE WASH"
All other DC Voltage adjustments should have already been made.

Note: You can also measure across C239 for the VZB (Zbias) adjustment.

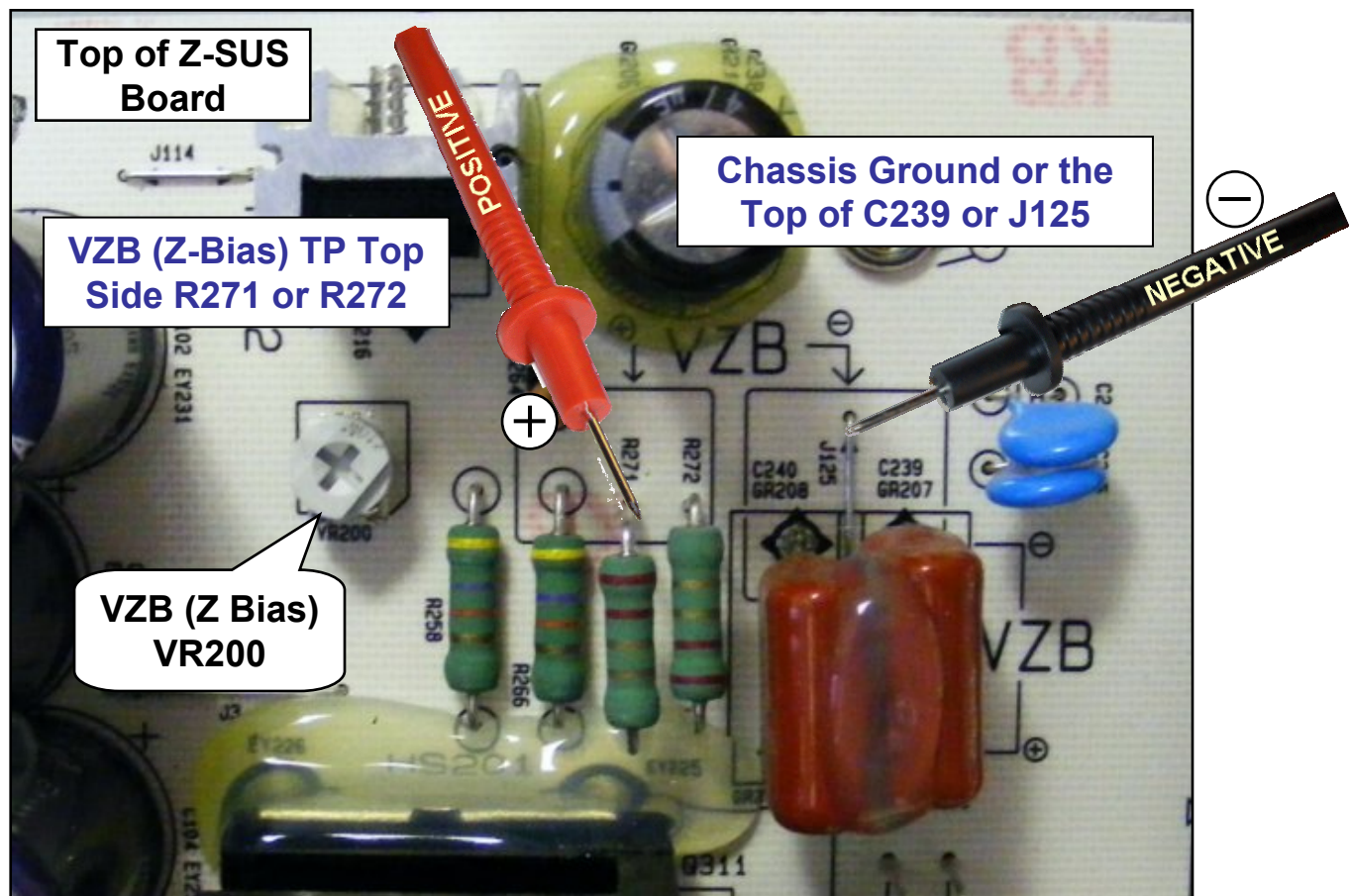Model : PDP 50G2####
||||||||||||||||||||||||||||||||||||||||||
Voltage Setting:5V / Va:60V / Vs:193V
N.A. / -185 / 133 / N.A. / 80

Z Bias

Read the Label on the back of the upper left hand side of the panel when adjusting VR200.

Top of Z-SUS Board

POSITIVE

Chassis Ground or the Top of C239 or J125

NEGATIVE

VZB (Z-Bias) TP Top Side R271 or R272

VZB (Z Bias) VR200

50G2 PANEL

Adjustment:
VZ (Z-Bias) to match your specific Panel's Voltage Label (± 1V)

Measured from Chassis Ground

50H1 PLASMA PANEL

QUICK REFERENCE

ALIGNMENT HAND BOOK

MODELS USING THE 50H1 PANEL

50PF95ZA
50PY3DFUA
50PY3DFUJ
50PY3DR
50PY3DRNB

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50H1 SMPS BOARD ADJUSTMENT POINTS

The Vs/Va voltages are adjustable and should be adjusted to the correct values as indicated by the panel label. Example on right.

Always adjust "Highest to Lowest" voltages.

VS and VA adjustment resistors are shown in the drawing below. They are located towards the top right hand side of the board.

RV951 is the VS adjustment pot.

RV901 is the VA adjustment pot.

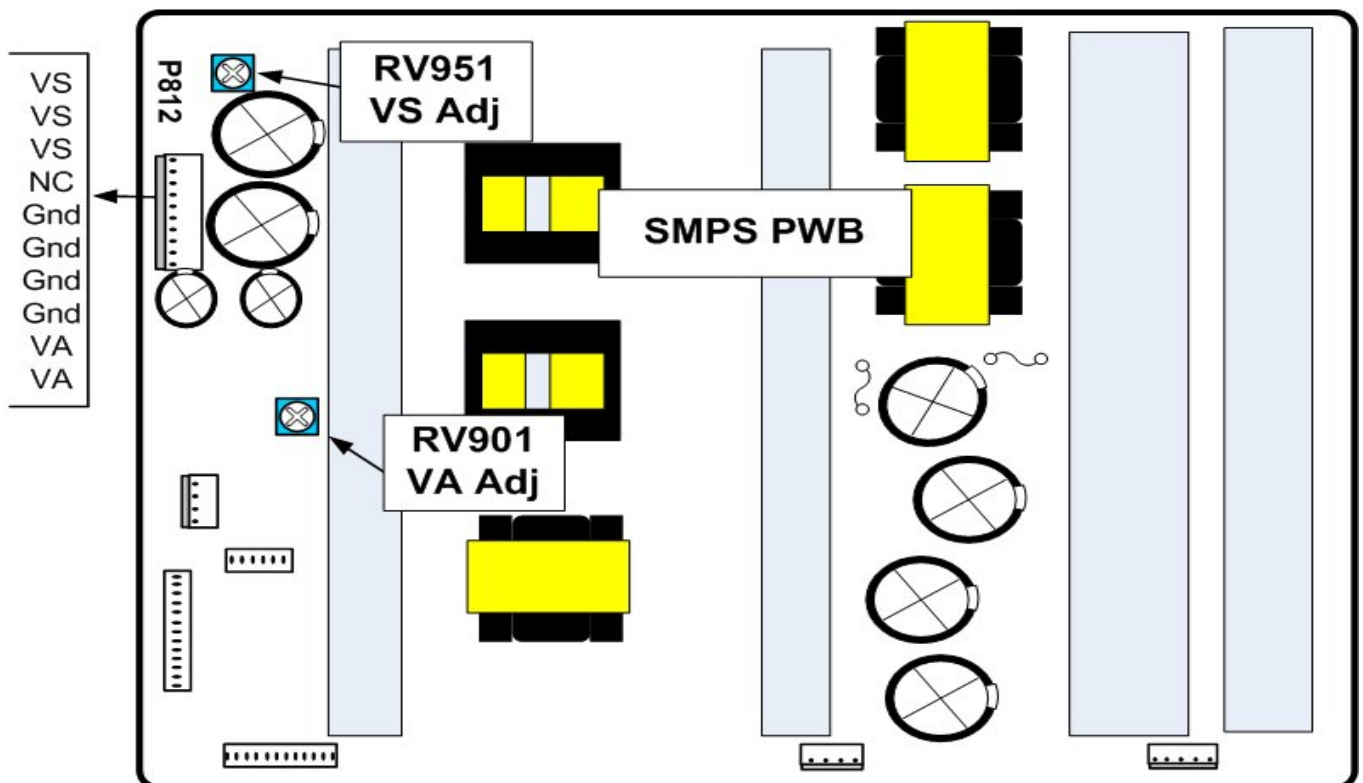**Set should be in "Full White Raster"**

1) **VS ADJUST:** Connect DVM to pin 8, 9 or 10 of P812. Adjust **RV95**1 until the voltage matches the panel's voltage label.

2) **VA ADJUST:** Connect DVM to pin 1 or 2 of P812. Adjust **RV901** until the voltage matches the panel's voltage label.

All measurements taken from Chassis Gnd.

Model : PDP 50H1###
Voltage Setting: DC 5.3V/ Va:60/ Vs:190
N.A. / -180 / 125 / N.A. / 115
Max Watt : 570 W (Full White)

VA-Adj   VS-Adj

50H1 PANEL

VS
VS
VS
NC
Gnd
Gnd
Gnd
Gnd
VA
VA

P812

RV951
VS Adj

SMPS PWB

RV901
VA Adj

50H1 Y-SUS BOARD ADJUSTMENT POINTS
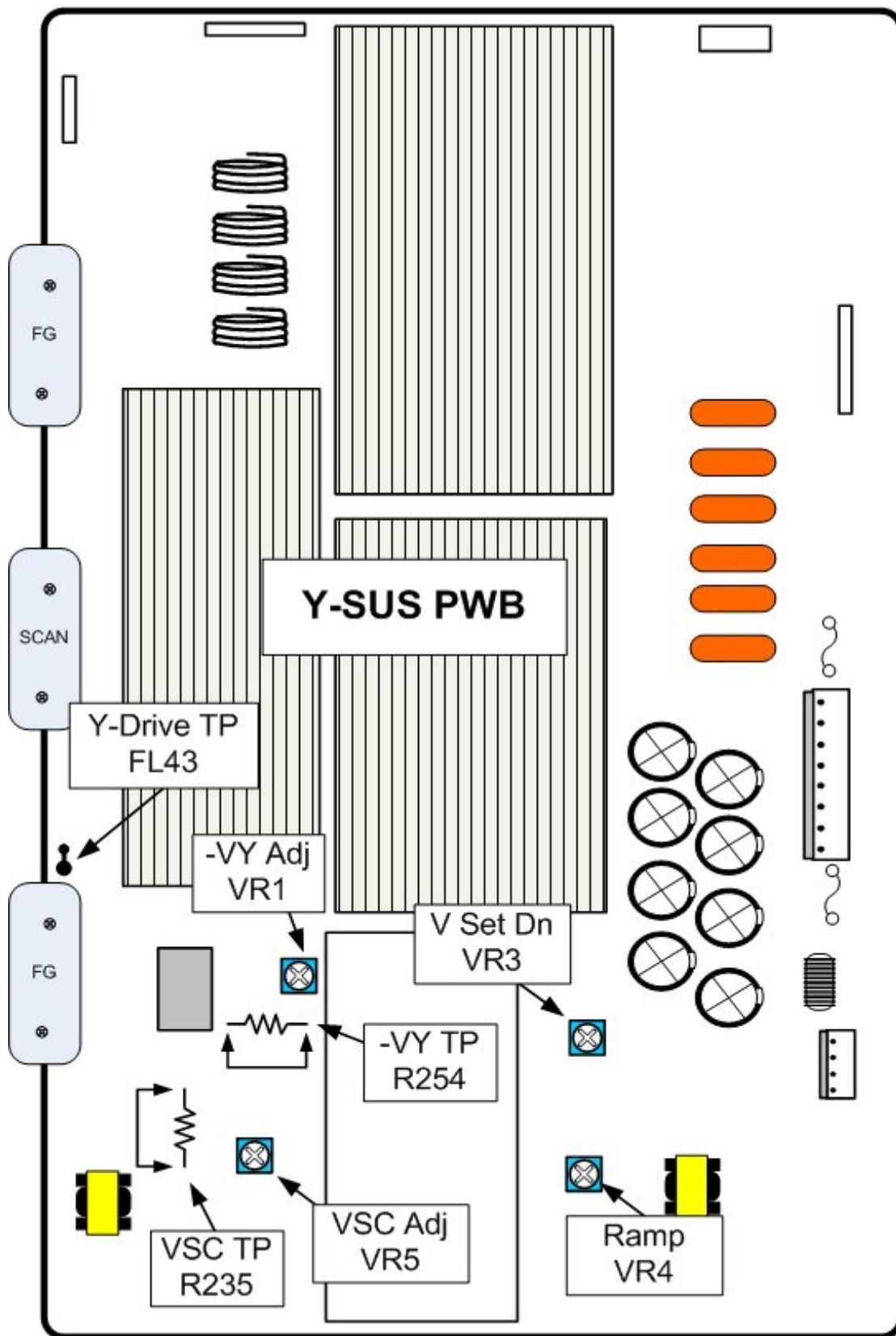
Y-SUS PWB

Y-Drive TP
FL43

-VY Adj
VR1

V Set Dn
VR3

-VY TP
R254

VSC TP
R235

VSC Adj
VR5

Ramp
VR4

FG

SCAN

FG

FG

50H1 PANEL

VSC and –Vy Voltage Adjustment Locations

These voltages are adjustable and should be adjusted to the correct values as indicated by the panel's voltage label. Example shown above.

Model : PDP 50H1###
Voltage Setting: DC 5.3V/ Va:60/ Vs:190
N.A. / -180 / 125 / N.A. / 115
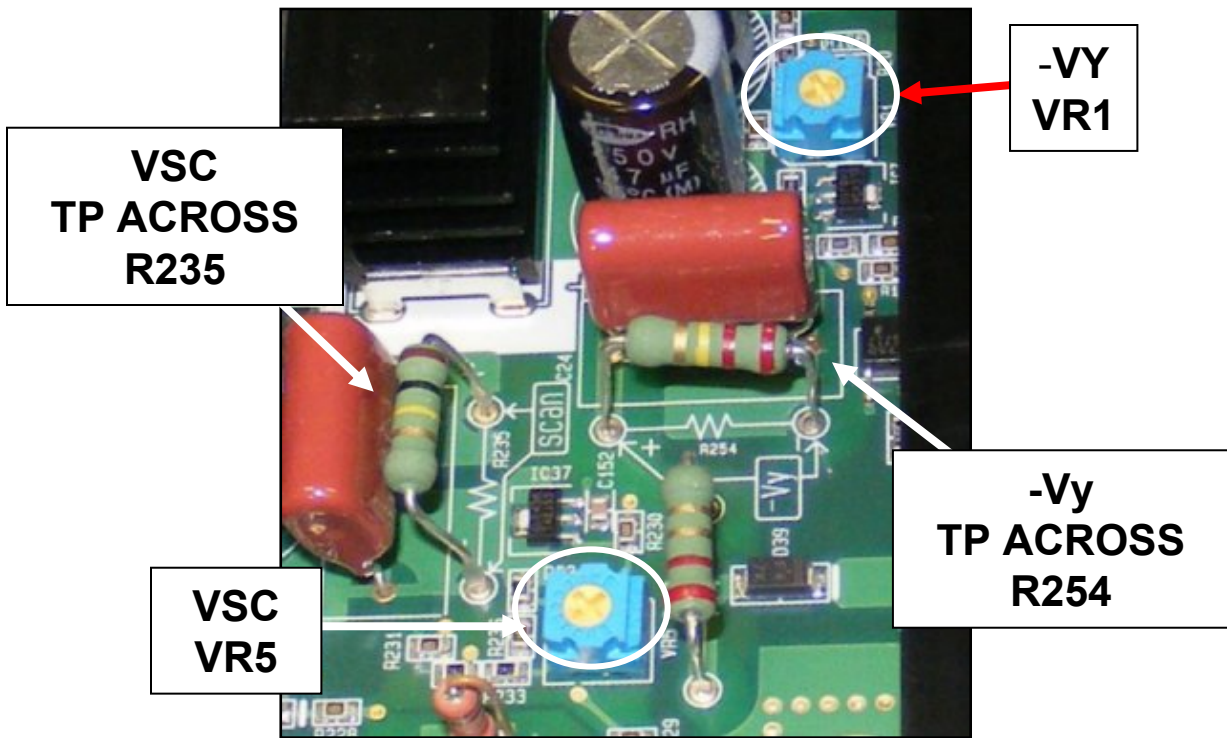Max Watt : 570 W (Full White)

-Vy   VSC

-Vy (VR1) variable resistor.

> Adjust the -Vy (**VR1**) while reading across **R254**.
> Match your specific panel's voltage label.

VSC (VR5) variable resistor.

> Adjust the VSC (**VR5**) while reading across **R235**.
> Match your specific panel's voltage label.

VSC TP ACROSS R235
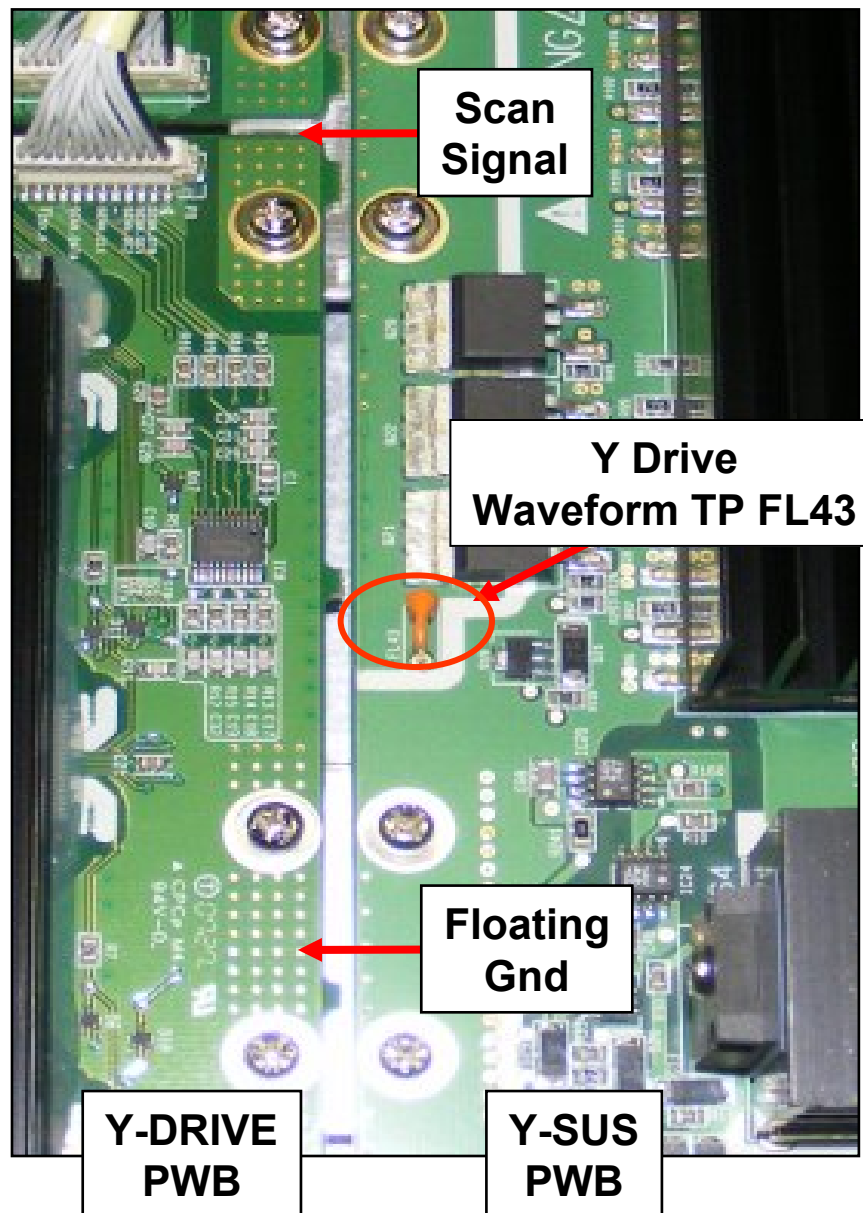
-VY VR1

VSC VR5

-Vy TP ACROSS R254

Bottom Center Left of the board.

50H1 Y Drive Waveform Test Point

Figure 1 shows the Y-Drive Test Point FL43 on the
Y-SUS PWB with the area outlined in the Red circle.

Use this TP for alignment of the Y-Drive signal using Set-Up and Set-Down adjustments shown on the next page.

Scan Signal

Y Drive Waveform TP FL43

Floating Gnd

Y-DRIVE PWB

Y-SUS PWB

(Fig. 1)

Center Left of the Y-SUS board.

50H1 PANEL

50H1 Y-DRIVE WAVEFORM ADJUSTMENT

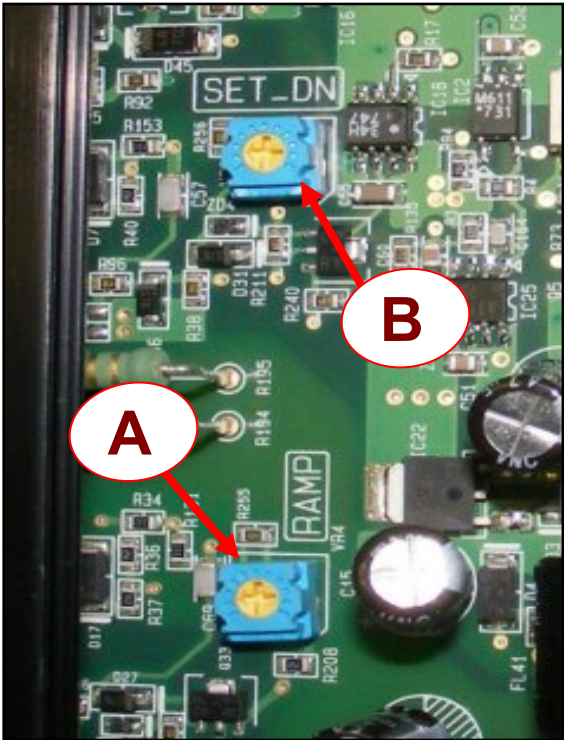VS, VA, VSC, -Vy should have been completed.

Using a Full White Raster, adjust the Set-up and Set-dn section of the Y-Drive waveform.
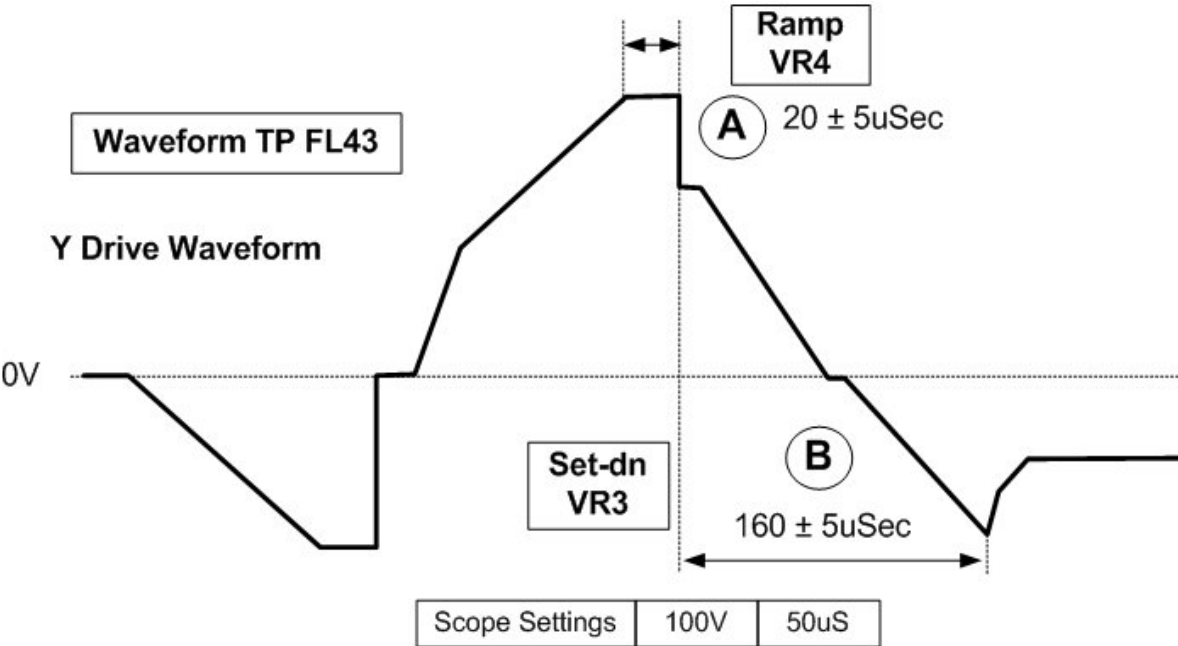
Oscilloscope TP "Waveform" TP FL43 on the Y-SUS PWB.

(A) Ramp: Adjust **VR4** while observing area (**A**) and set to **20uSec ± 5uSec.**

(B) Set-Down: Adjust **VR3** while observing area (**B**) and set to **160uSec ± 5uSec.**

See Y-SUS Test Points and Adjustments diagram for locations.

Bottom Center Right of the board.

50H1 Z-SUS BOARD ADJUSTMENT POINTS

The picture to the right represents a 50H1 Panel Voltage Label. This is for an example only. Adjust your set's Z-Bias adjustment to your specific Panel's Voltage Label not this book.

Model : PDP 50H1###
Voltage Setting: DC 5.3V/ Va:60/ Vs:190
N.A. / -180 / 125 / N.A. / 115
Max Watt : 570 W (Full White)

Zbias

This picture represents the 50H1 Z-SUS PWB. Use this for reference to locate the Adjustment control and the adjustment Test Points.

Z-SUS PWB

FL30
Z-SUS
Waveform TP

VR1
Z-Bias Adj

Z-Bias TP
Q4 Drain
To Chassis
Gnd

R52
R51

Q4
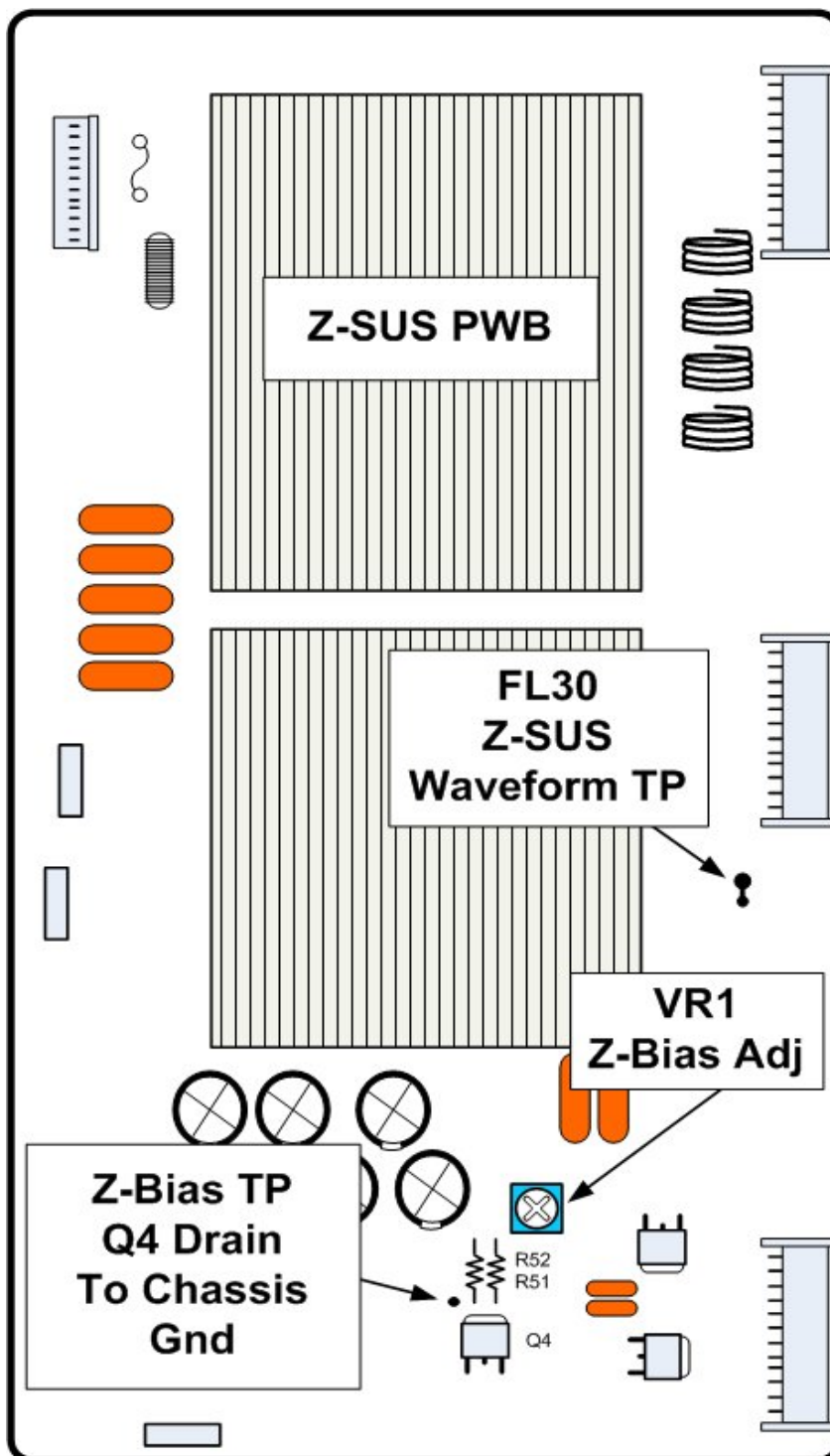
50H1 Z-SUS BOARD ADJUSTMENT POINTS

VS, VA, VSC, -Vy should have been completed.

Model : PDP 50H1###
Voltage Setting: DC 5.3V/ Va:60/ Vs:190
N.A. / -180 / 125 / N.A. / 115
Max Watt : 570 W (Full White)

Zbias

Full White Raster

1) Connect DVM (+) right side **Gate of Q4**. Measured from Chassis Gnd.
2) Adjust Z-Bias (**VR1**) to match your specific panel's voltage label.

Z Bias Adjust VR1

Z Bias Test Point Gate of Q4 To Chassis Ground

Bottom of the board.

Intentionally left blank

50H2 PANEL

QUICK REFERENCE

ALIGNMENT SECTION

MODELS USING THE 50H2 PANEL

50PG60

50PG30

LG

Life's Good

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50H2 SMPS PWBs ADJUSTMENT POINTS

Set should be in "Full White Raster"

These two voltages are adjustable and should be adjusted to the correct values as indicated by the panel label.

Example shown on the right.

VR951 VA-Adj   VR901 VS-Adj

Model : PDP 50H2####
Voltage Setting: 5.0V/ Va:65/ Vs:195
N.A. / -175 / 140 / N.A. / 120
Max Watt : 550 W (Full White)

Always adjust "Highest to Lowest" voltages.
VS and VA adjustment resistors are shown in the drawing below.
They are located at the top left of the board.
VR951 is the VS adjustment pot.
VR901 is the VA adjustment pot.

1) **VS ADJUST:** Connect DVM to pin 1 or 2 of P812. Adjust VR951 until the voltage matches the panel's voltage label.

2) **VA ADJUST:** Connect DVM to pin 6 or 7 of P812. Adjust VR901 until the voltage matches the panel's voltage label.

50H2 PANEL

P812 or P816   Pins 1 or 2 VS   Pins 6 or 7 VA

VS VS NC Gnd Gnd VA VA Gnd M5V M5V

P812

VS VS NC Gnd Gnd VA VA Gnd M5V M5V

P816

VR951 VS

VR901 VA

T201

P817

P815

U701

2   1

22   21

50H2 Y-SUS BOARD ADJUSTMENT POINTS

Y-SUS TP
FL19

VSC TP
R189

FS3 VS

P7

Y-SUS PWB

FS1 5V

Y-SUS TP
FL18

VR2
Vset-up

VR4
VSC

VR1
Vset-dn

R265
-VY TP

VR3
-VY

P9

50H2 PANEL
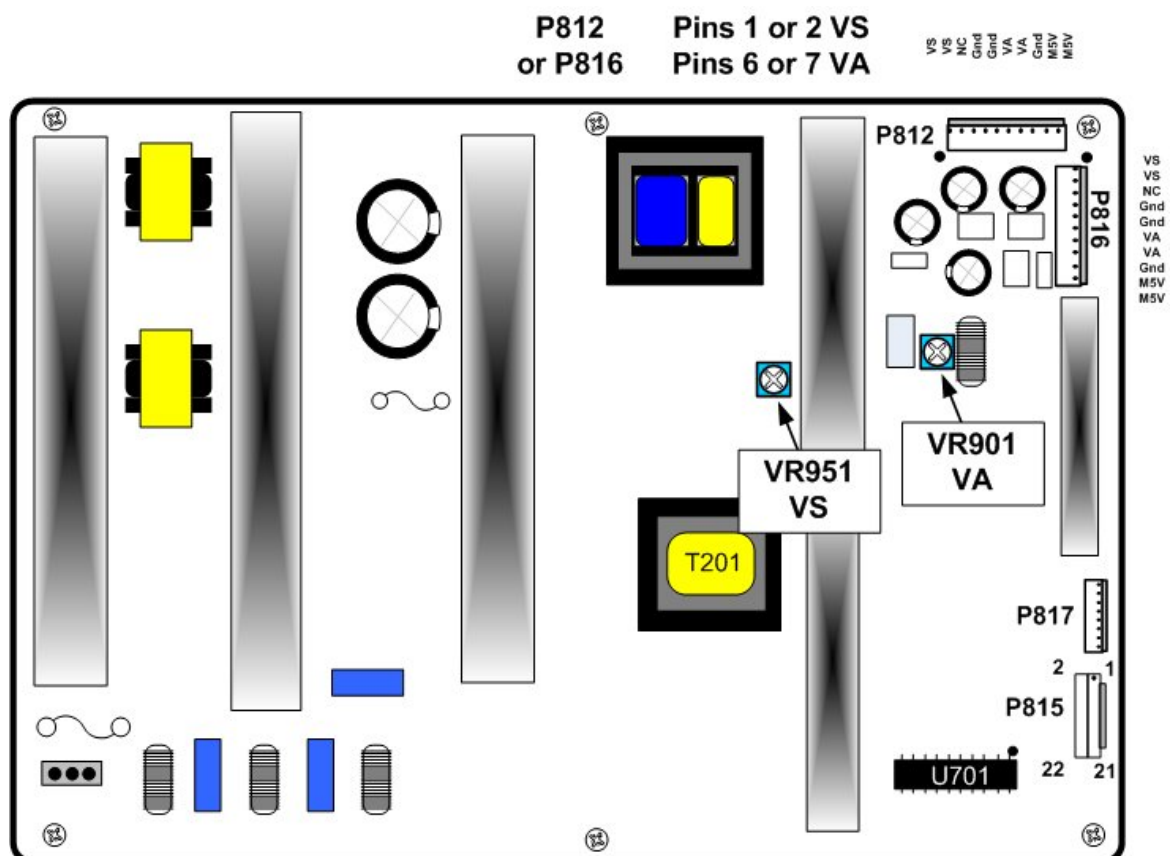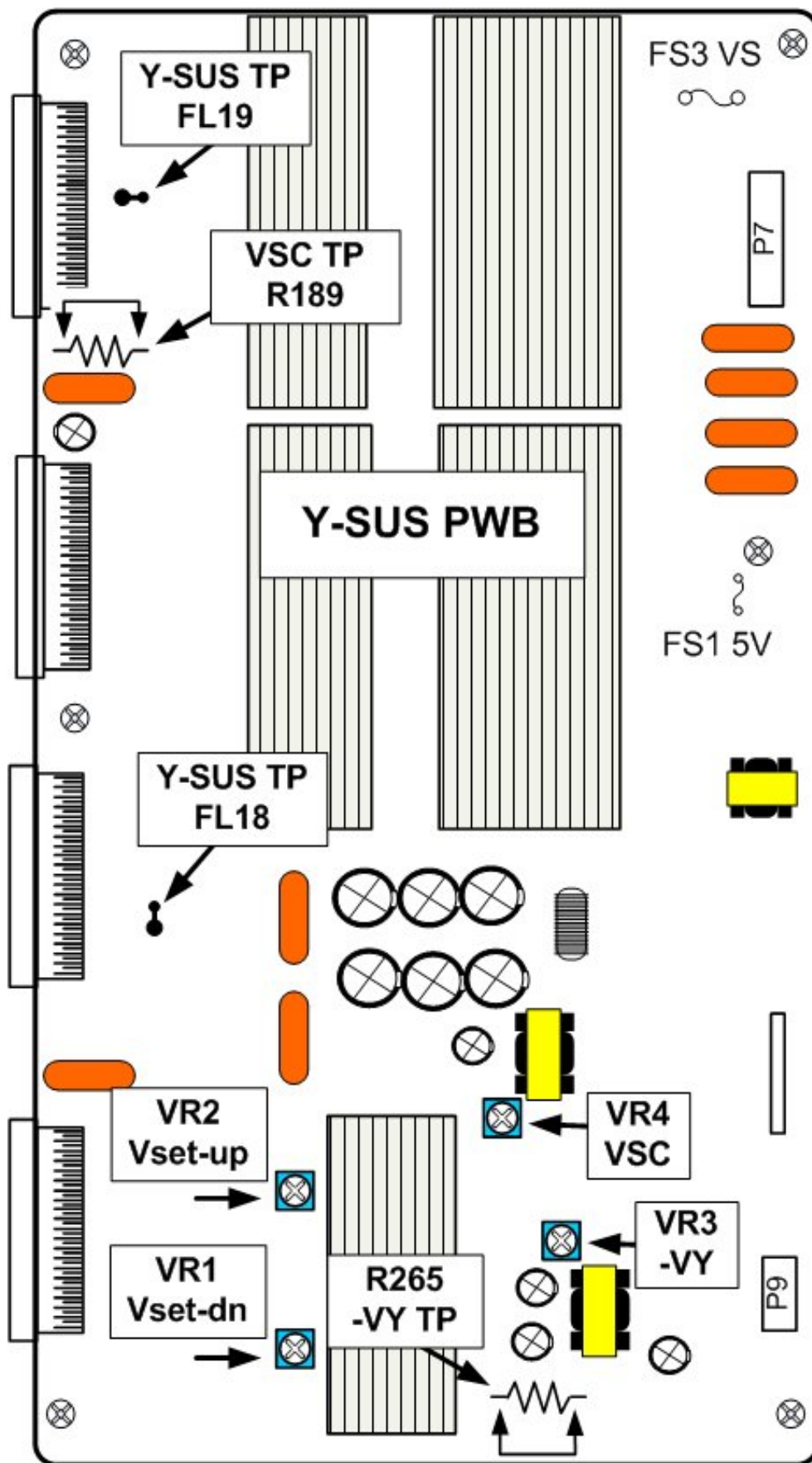
50H2 VSC, -Vy ADJUSTMENTS

PREPARATION:

1) Pre-Heat unit for 10 Minutes
   before making adjustments.
   Vs and Va adjustments complete.
2) Place unit into White Wash from the
   Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as indicated on
   your specific panel's voltage label in the upper right
   of the panel.**

Model : PDP 50H2####
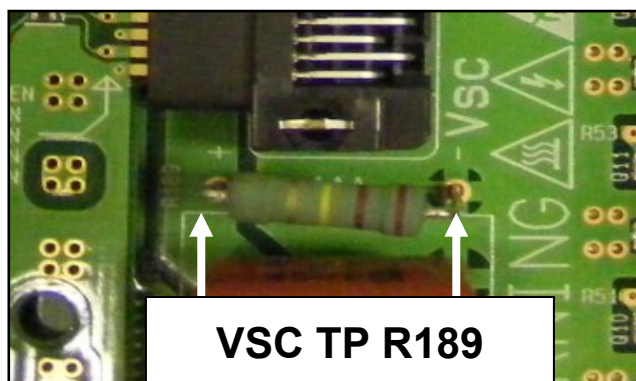Voltage Setting: 5.0V/ Va:65/ Vs:195
N.A. / -175 / 140 / N.A. / 120
Max Watt : 550 W (Full White)

-Vy   VSC
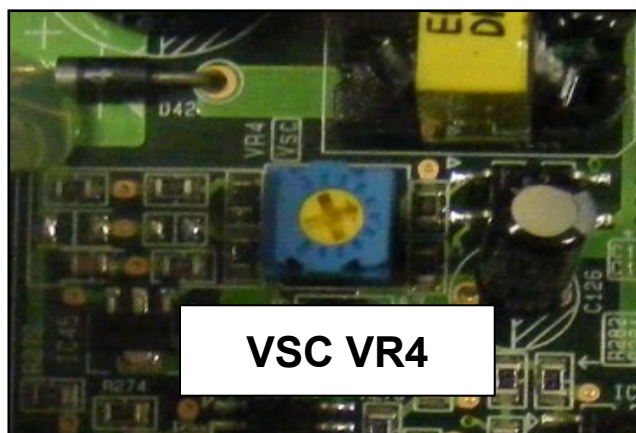
PROCEDURE: (See figure below for locations)
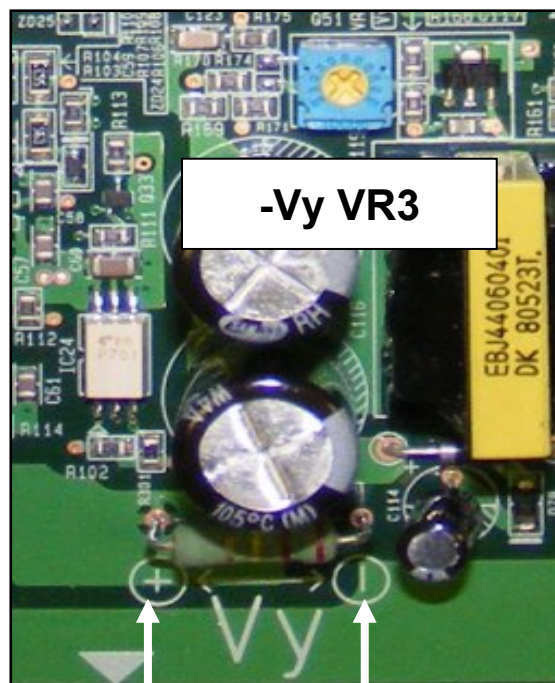
1) **Adjust –Vy VR3**. Measured across –Vy TPs **R265**.
   Match your specific Panel's Voltage label ±1V.

2) **Adjust VSC VR4**. Measured across VSC TPs **R189**.
   Match your specific Panel's Voltage label ±1V.

VSC TP R189

Location Upper left

VSC VR4

Location Lower Center

-Vy VR3

**-Vy TP
R265**

Location Bottom Center

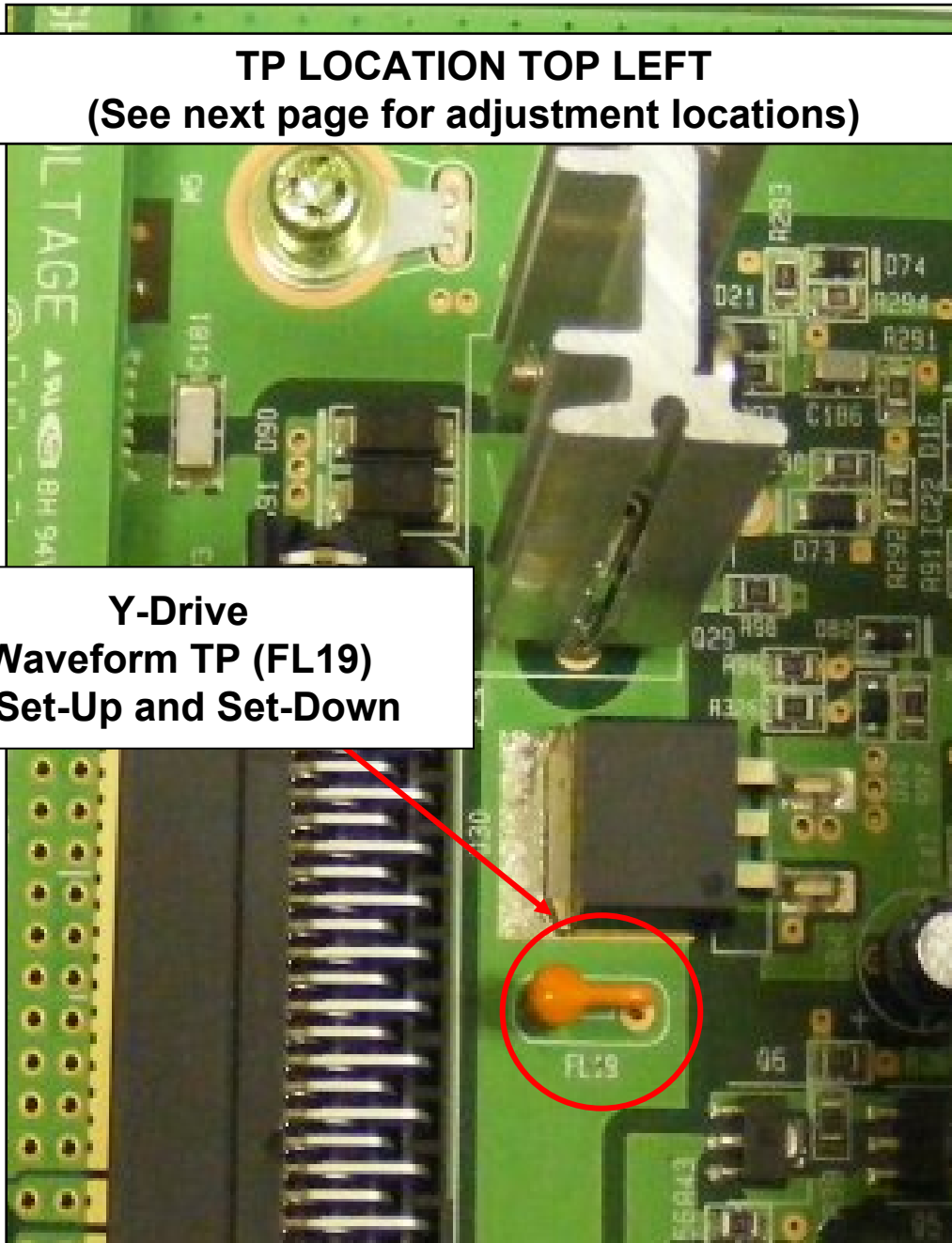# 50H2 Y Drive Waveform Test Point

Two pages back show the Y-SUS PWB

Figure Below:
Shows a close-up image of the Y-Drive waveform test point on the Y-SUS Board, **TP FL19.**

Set-Up and Set-Down portions of the waveform are adjusted using this TP.

TP LOCATION TOP LEFT
(See next page for adjustment locations)

Y-Drive
Waveform TP (FL19)
V Set-Up and Set-Down

50H2 Y-DRIVE WAVEFORM ADJUSTMENTS

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes
   before making adjustments.
   Vs, Va, -Vy and VSC adjustments should be completed.
2) Place unit into White Wash from the
   Customer's Menu for all adjustments.
**3) Be sure to use all adjustment values as
   indicated on the panel voltage label on the panel.**
 (See figure below for adjustment locations)

(See Next page for adjustment specifications.)

ADJUSTMENT LOCATIONS
(See preceding page for TP location)

**V Set-Up Adj
VR2**

**V Set-Dn Adj
VR1**

Lower Left Side Of Board

50H2 PANEL

50H2 Y-Drive Waveform Adjustment

Using a Full White Raster, adjust the Y-Set-up and Set-dn section of the Y-Drive waveform.
VS, VA, -Vy and VSC should have been adjusted.

Oscilloscope TP on the "Waveform" TP (FL6) on the Y-SUS PWB.

RAMP ADJUSTMENT:

SET-UP ADJUSTMENT:
Adjust **VR2** while observing area (**A**) and set the flat portion to **20uSec ± 5uSec**.

SET-DOWN ADJUSTMENT:
Adjust **VR1** while observing area (**B**) and set the time to **180uSec ± 5uSec**.

Set-up VR2   20 ± 5us   (A)

Y-Drive Waveform TP FL6

0V

(B)   Set-dn VR1   180 ± 5uSec

Scope Settings	100V	50uS
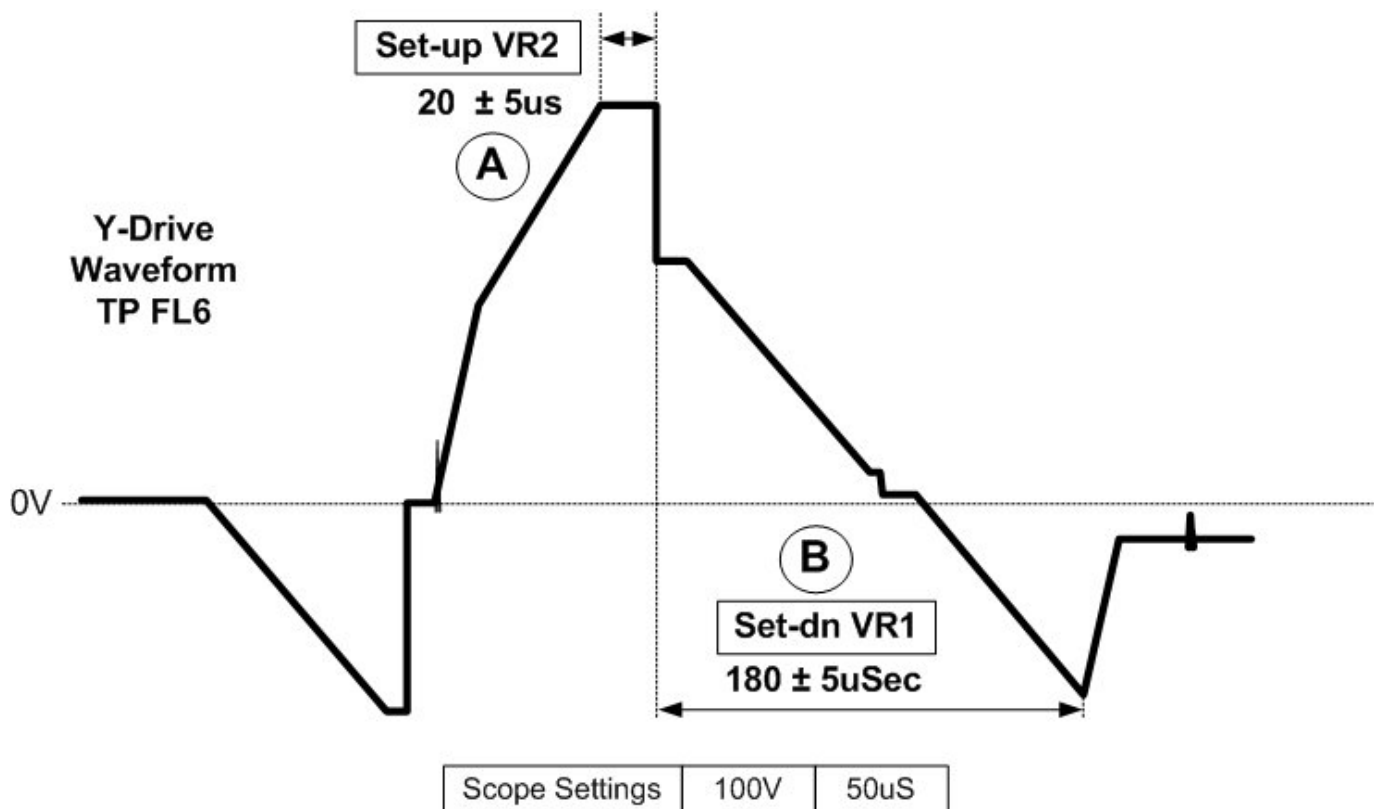
50H2 Z-SUS PWB ADJUSTMENT POINTS

50H2 PANEL

P8

VS

5V

P1

Z Drive
Waveform TP
FL30

Z-SUS PWB

(Vzb) Zbias TP
Q1 to Chassis Gnd

VR1
Z-Bias Adj

Q18 Q1
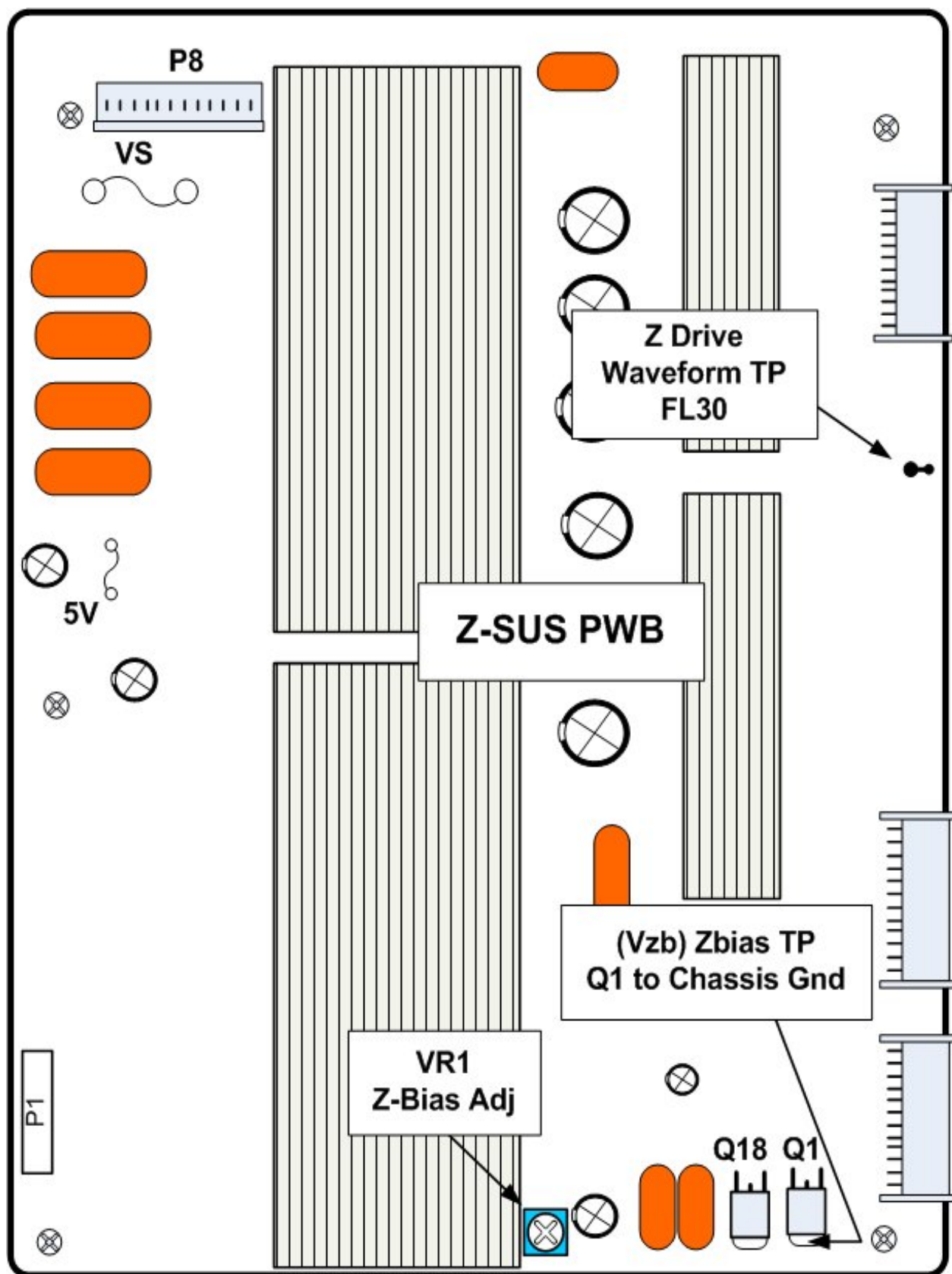
50H2 Z-SUS (Z-Bias) ADJUSTMENT:

PREPARATION:

1) Pre-Heat unit for at least
   10 Minutes before making
   adjustments.
2) Place unit into White Wash
   from the Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as
   indicated on the panel voltage label in the
   upper right hand corner of the panel.**

Model : PDP 50H2####
Voltage Setting: 5.0V/ Va:65/ Vs:195
N.A. / -175 / 140 / N.A. / 120
Max Watt : 550 W (Full White)

Zbias

PROCEDURE: Z-BIAS ADJUSTMENT
(See preceding page for locations)

1.   Place DC Volt meter on **VZB TP**
      (**Q1 Gate to Chassis Gnd**).
2.   Adjust VZB (Z Bias) **VR1** in accordance with
      the Panel's voltage label.

Z-Bias
ADJ
VR1

Z-Bias TP
Q1 Gate to
Chassis Gnd
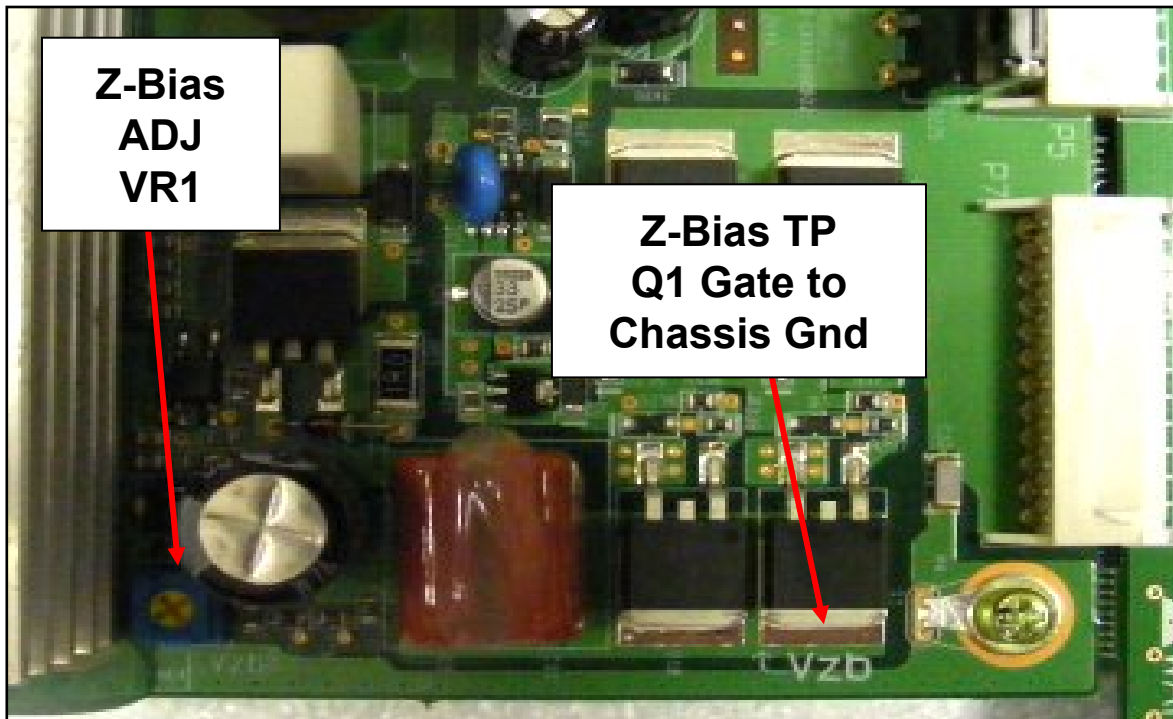
Lower Right Side Of Board

50H2 PANEL

50H3 PANEL

QUICK REFERENCE

ALIGNMENT SECTION

MODELS RELATED

50PS30-UB

50PS60-UA

50PS60C-UA

50PS80

LG

Life's Good

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50H3P SMPS BOARD ADJUSTMENT POINTS

Set should be in "Full White Raster"

These two voltages are adjustable and should be adjusted to the correct values as indicated by the panel label.

Example shown on the right.

Always adjust "Highest to Lowest" voltages.

VS and VA adjustment resistors are shown in the drawing below.

They are located at the top left of the board.

VR901 is the VS adjustment pot.

VR501 is the VA adjustment pot.

Model : PDP 50H3###1
Voltage Setting: 5.0V/ Va:65/ Vs:195
N.A. / -180 / 140 / N.A. / 100

VR501   VR901
VA-Adj   VS-Adj

1) **VS ADJUST:** Connect DVM to pin 1 or 2 of P812. Adjust VR901 until the voltage matches your panel's voltage label.

2) **VA ADJUST:** Connect DVM to pin 6 or 7 of P812. Adjust VR501 until the voltage matches your panel's voltage label.

P811

P811 or P812

10) M5V
9) M5V
8) Gnd
7) VA
6) VA
5) Gnd
4) Gnd
3) NC
2) VS
1) VS

VR901 VS

P812

P813

VR501 VA

T301

U701

SK101

P814 23
1
2   24

50H3P Y-SUS PWB ADJUSTMENT POINTS

P312

P311

P309

FS302
Vs

P302

FS303
Va

FS301
M5V

R306
VSC TP

(-)

(+)

P313

VR602
SET-up1

VR601
SET-dn1

(-) (+)

VR902
DD_Var (-Vy)

R305
-VY TP

P314

FS901
M5V

VR901
VSCAN

P307

P101

50H3 PANEL
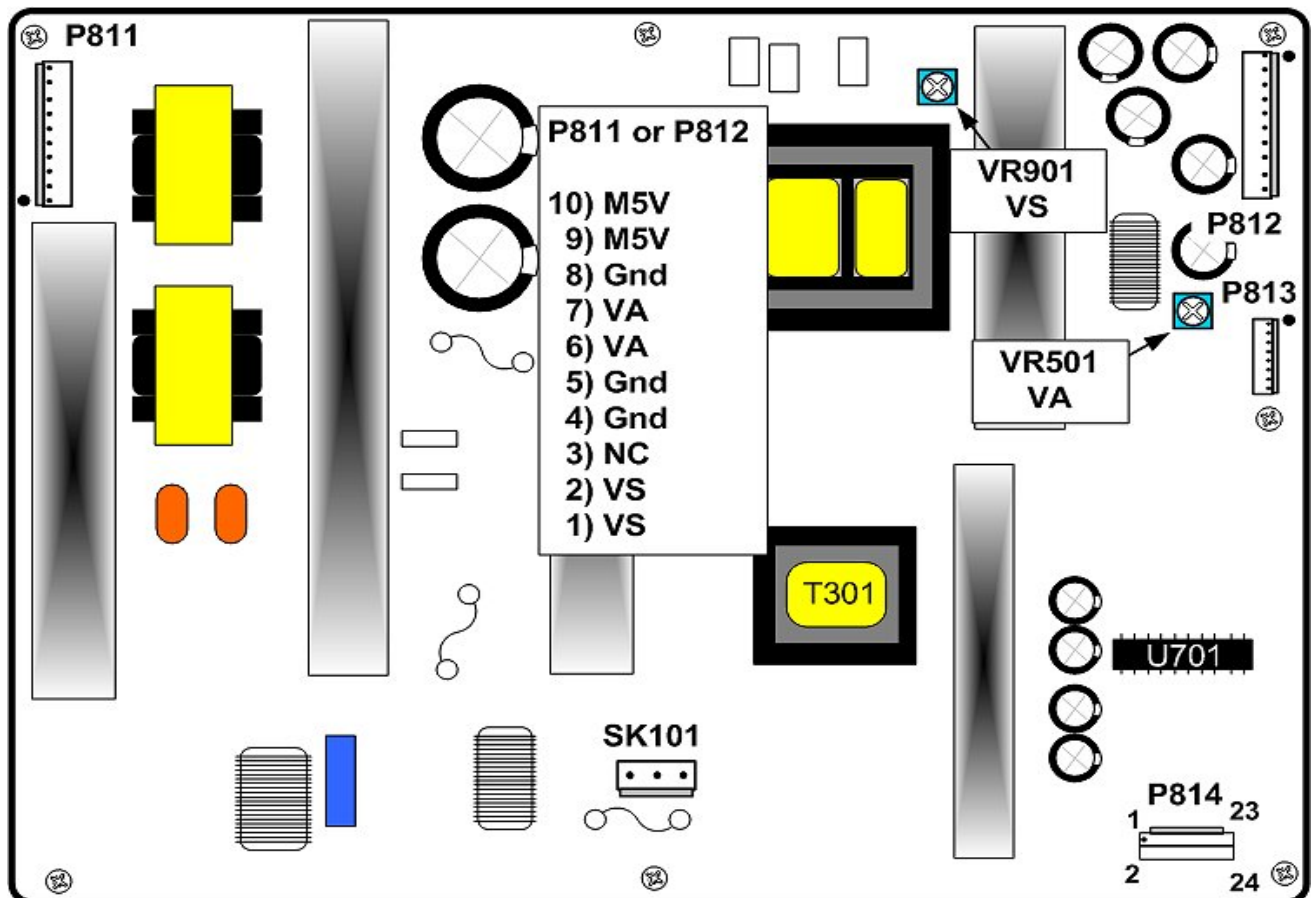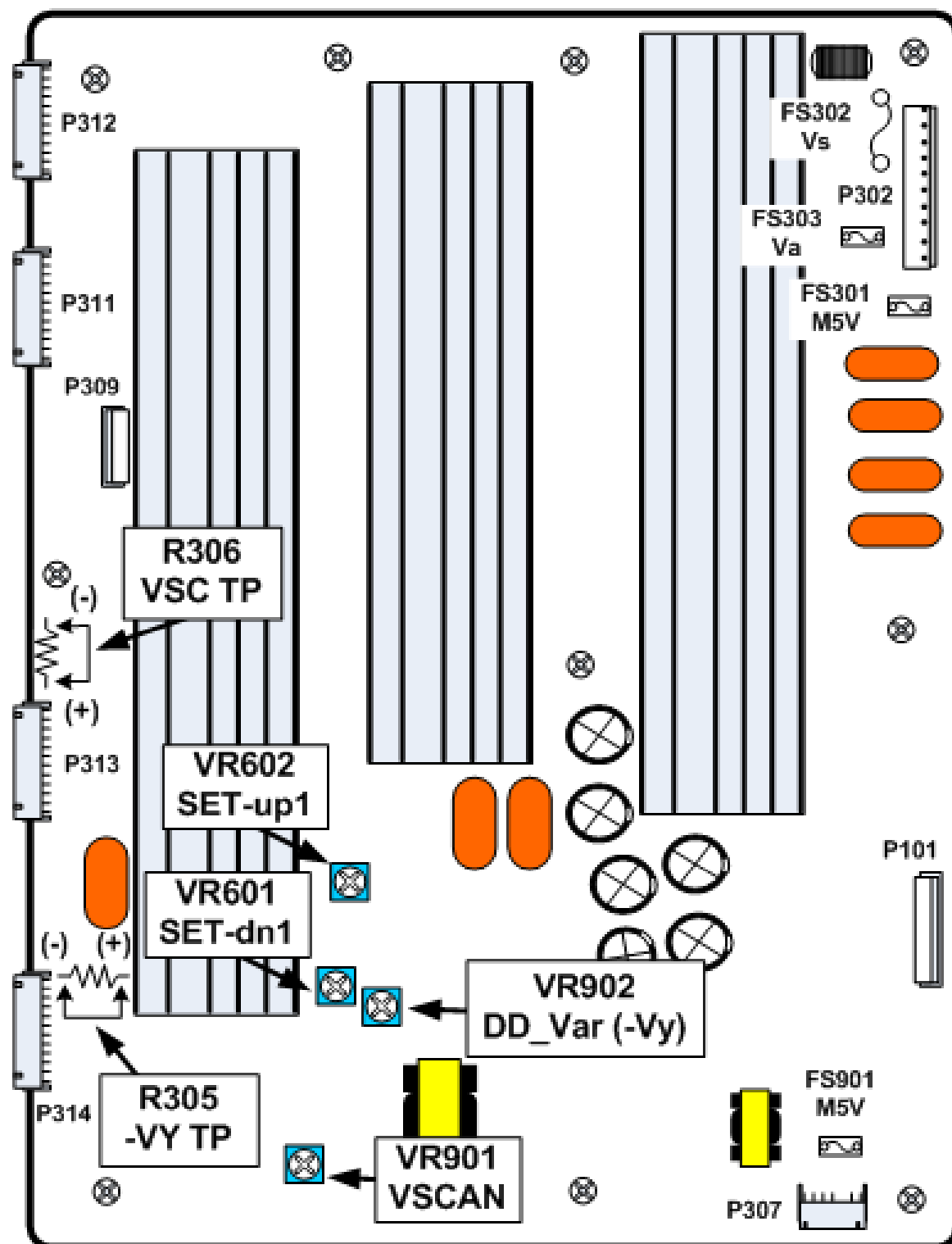
50H3 VSC, -Vy ADJUSTMENTS

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
   Vs and Va adjustments complete.
2) Place unit into White Wash from the Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as indicated on your panel's voltage label in the upper right of the panel.**

Model : PDP 50H3###1
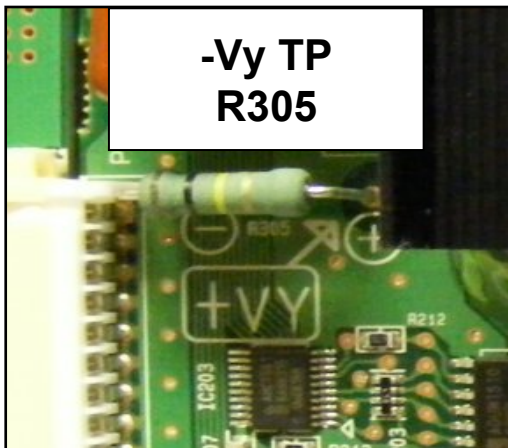Voltage Setting: 5.0V/ Va:65/ Vs:195
N.A. / -180 / 140 / N.A. / 100
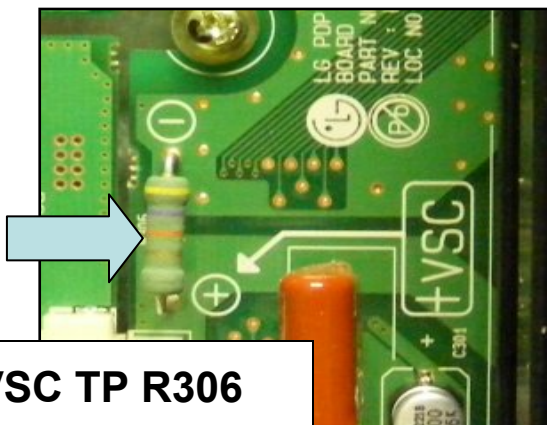
-Vy   VSC

PROCEDURE: (See figure below for locations)

1) **Adjust –Vy VR902**. Measured across –Vy TPs R305.
   Match your specific Panel's Voltage label ±1V.

2) **Adjust VSC VR901**. Measured across VSC TPs R306.
   Match your specific Panel's Voltage label ±1V.

-Vy TP
R305

Location Lower left

-Vy VR902

VSC VR901

Location Bottom Center

VSC TP R306

Location Lower Center

50H3 Y Drive Waveform Test Point

The figure below shows a close-up image of the
Y-Drive waveform test point on the Y-Drive PWB.
(TP Odd and Even Waveform)

Set-Up and Set-Down portions of the waveform are adjusted using
either of these TPs.

TP LOCATION BOTTOM OF Y-DRIVE PWB
(See next page for adjustment locations)

Y-Drive
Waveform Test Points
V Set-Up and Set-Down

50H3 PANEL

50H3 Y-DRIVE WAVEFORM ADJUSTMENTS

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes
   before making adjustments.
   Vs, Va, -Vy and VSC adjustments should be completed.
2) Place unit into White Wash from the Customer's Menu for
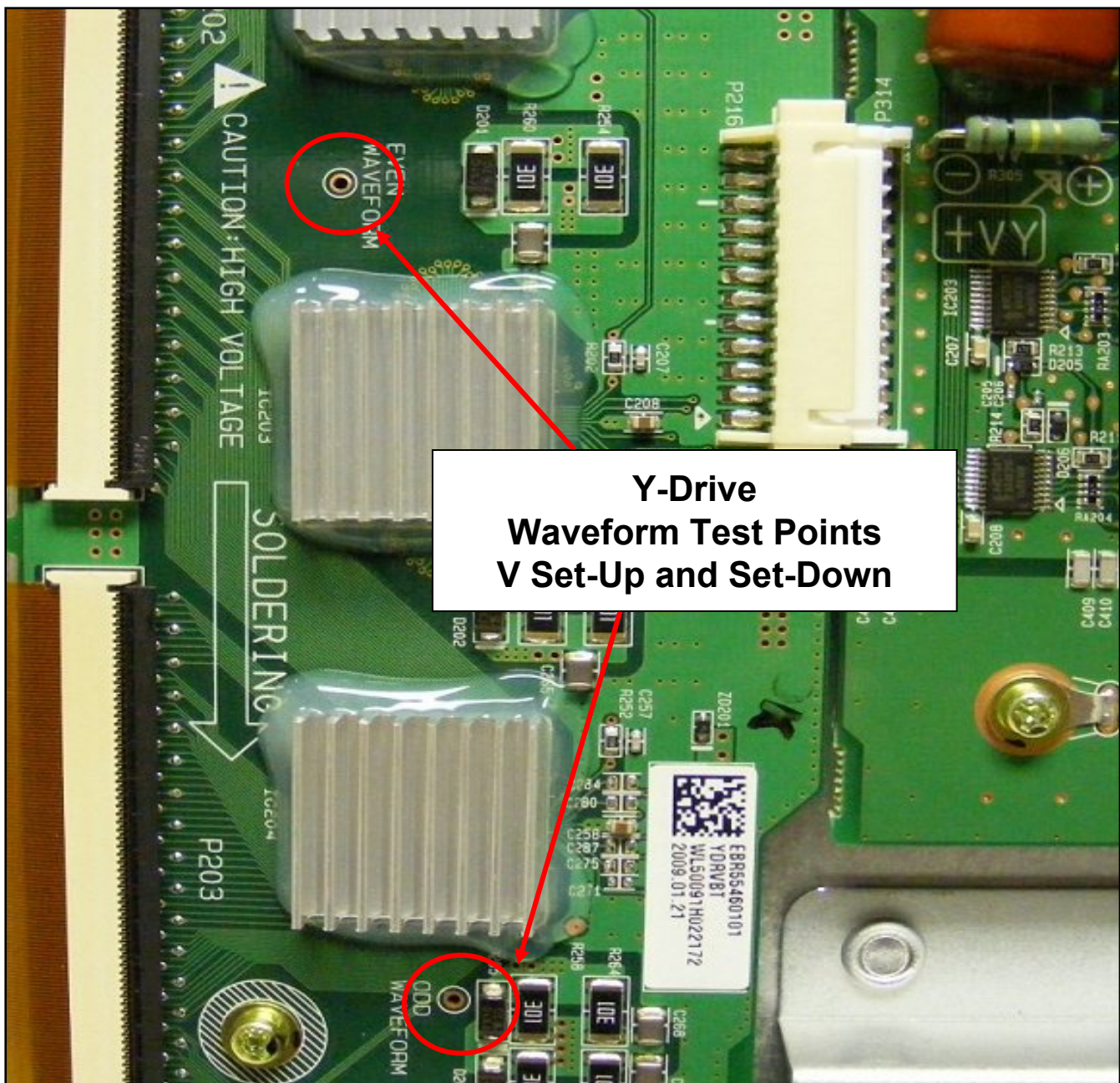   all adjustments.

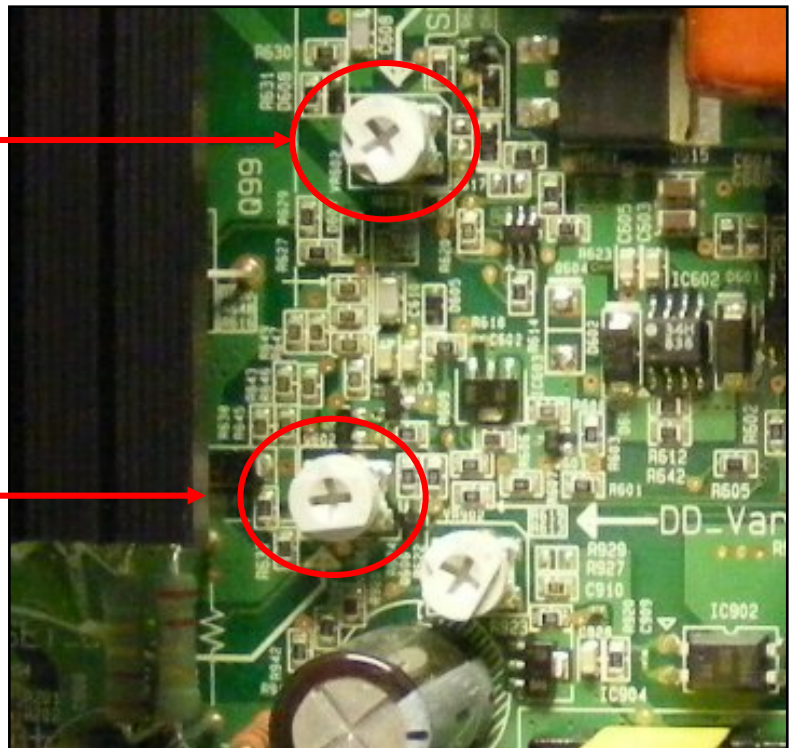**(See figure below for adjustment locations)**

(See Next page for adjustment specifications.)

ADJUSTMENT LOCATIONS
(See preceding page for Waveform TP locations)

**V Set-Up Adj
VR602**

**V Set-Dn Adj
VR601**

Lower Center Of Board

50H3 PANEL

50H3 Y-Drive Waveform Adjustment

Using a Full White Raster, adjust the Y-Set-up and Set-dn section of the Y-Drive waveform.
VS, VA, -Vy and VSC should have been adjusted.

Oscilloscope TP on the "Waveform" TPs on the Y-Drive PWB.

SET-UP ADJUSTMENT:
Adjust VR602 while observing area (**A**) and set the flat portion to 10uSec ± 5uSec. While observing only the peak of the waveform, turn the pot CW with cause the peak to dome to the left of the flat portion. CCW will cause the peak to decrease in amplitude. Turn CW until the dome appears, then back off CCW.

SET-DOWN ADJUSTMENT:
Adjust VR601 while observing area (**B**) and set to 160uSec ± 5uSec.

A   Set-up VR602

Flat Period: 10 ± 5us

Y-Drive
Waveform
TP Hole

0V

B

Set-dn VR601

160 ± 5uSec

Scope Settings	100V	50uS

50H3P Z-SUS BOARD ADJUSTMENT POINTS

50H3 PANEL

P104

Z-SUS PWB

FS102
Vs

P101

FS100
5V

**Z Drive
Waveform TP
FL103**

**(Vzb) Zbias TP
R457
to Chassis Gnd**

P102

R457

P100

**VR201
Z-Bias Adj**

P301
n/c

P103

50H3P Z-SUS (Z-Bias) ADJUSTMENT:

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.

Model : PDP 50H3###1
Voltage Setting: 5.0V/ Va:65/ Vs:195
N.A. / -180 / 140 / N.A. / 100

Zbias

2) Place unit into White Wash from the Customer's Menu for all adjustments.

3) Be sure to use all adjustment values as indicated on the panel voltage label in the upper right hand corner of the panel.

PROCEDURE: (See preceding page for locations)

1) **Place DC Volt meter on VZB TP (Top of R457 to Chassis Gnd).**
2) **Adjust VZB (Z Bias) VR201 in accordance with your Panel's voltage label.**

50H3 PANEL

Z-Bias TP
Top of R457 to
Chassis Gnd

Z-Bias
ADJ
VR201

Lower Right Side Of PWB

50R1 PANEL

QUICK REFERENCE

ALIGNMENT HAND BOOK

MODELS USING THE 50R1 PANEL

50PK950
50PK750
50PK560
50PK550
50PK540
50PK250

LG

Life's Good

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50R1 SMPS BOARD ADJUSTMENT POINTS

Set should be in "White Wash"

These two voltages are adjustable and should be adjusted to the correct values as indicated by your Panel's Voltage Label. Example shown on the right.

Model : PDP 50R1###
Voltage Setting: 5V/ Va:60/ Vs:203
N.A. / -190 / 150 / N.A. / 115
Max Watt : 450 W (Full White)

VA
VR501

VS
VR901

Always adjust "Highest to Lowest" voltages.
VS and VA adjustment resistors are shown in the drawing below.
They are located at the top Right of the board.
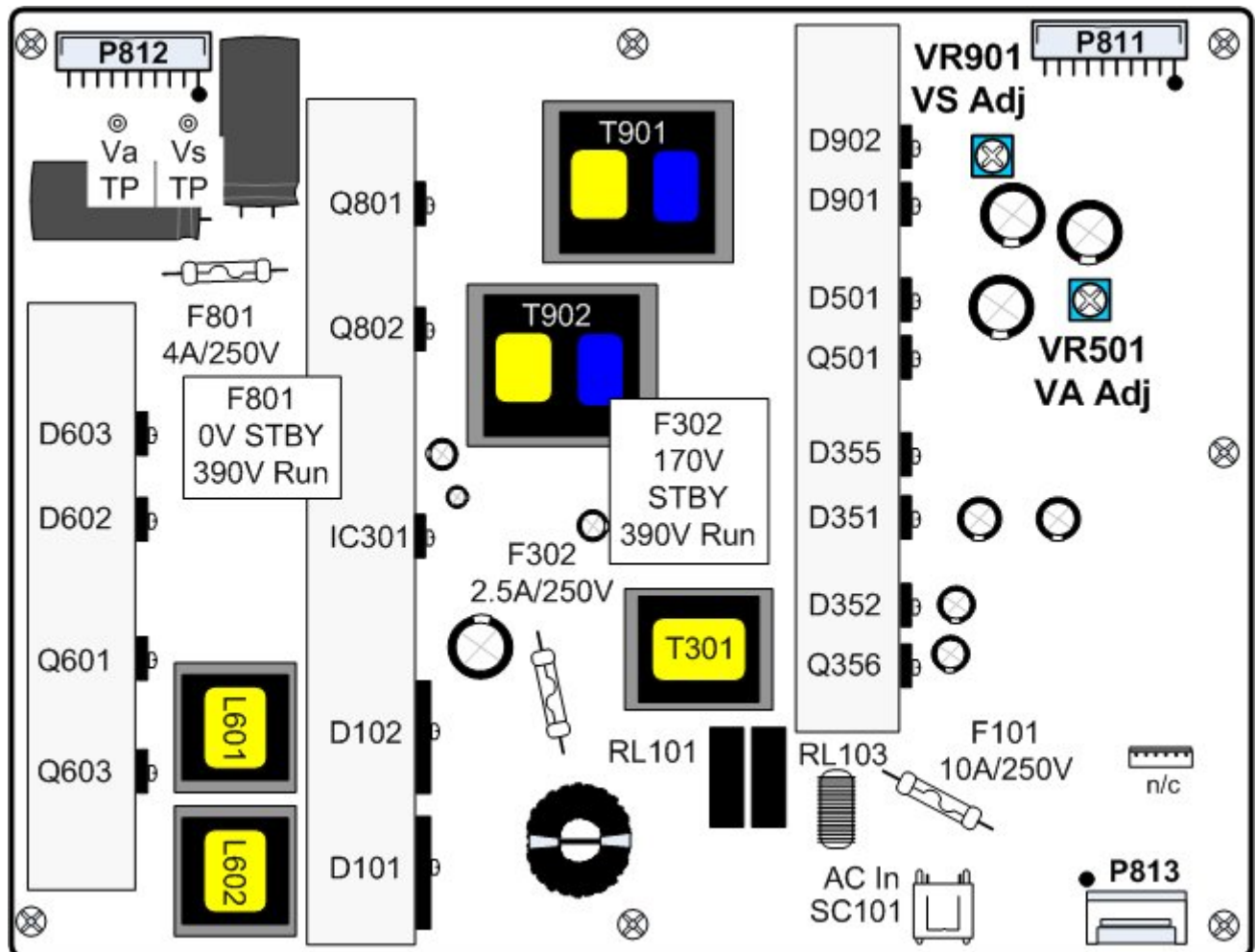
1) **VS ADJUST:**
   Connect DVM to VS Test Point or pins 1 or 2 of P811 or P812.
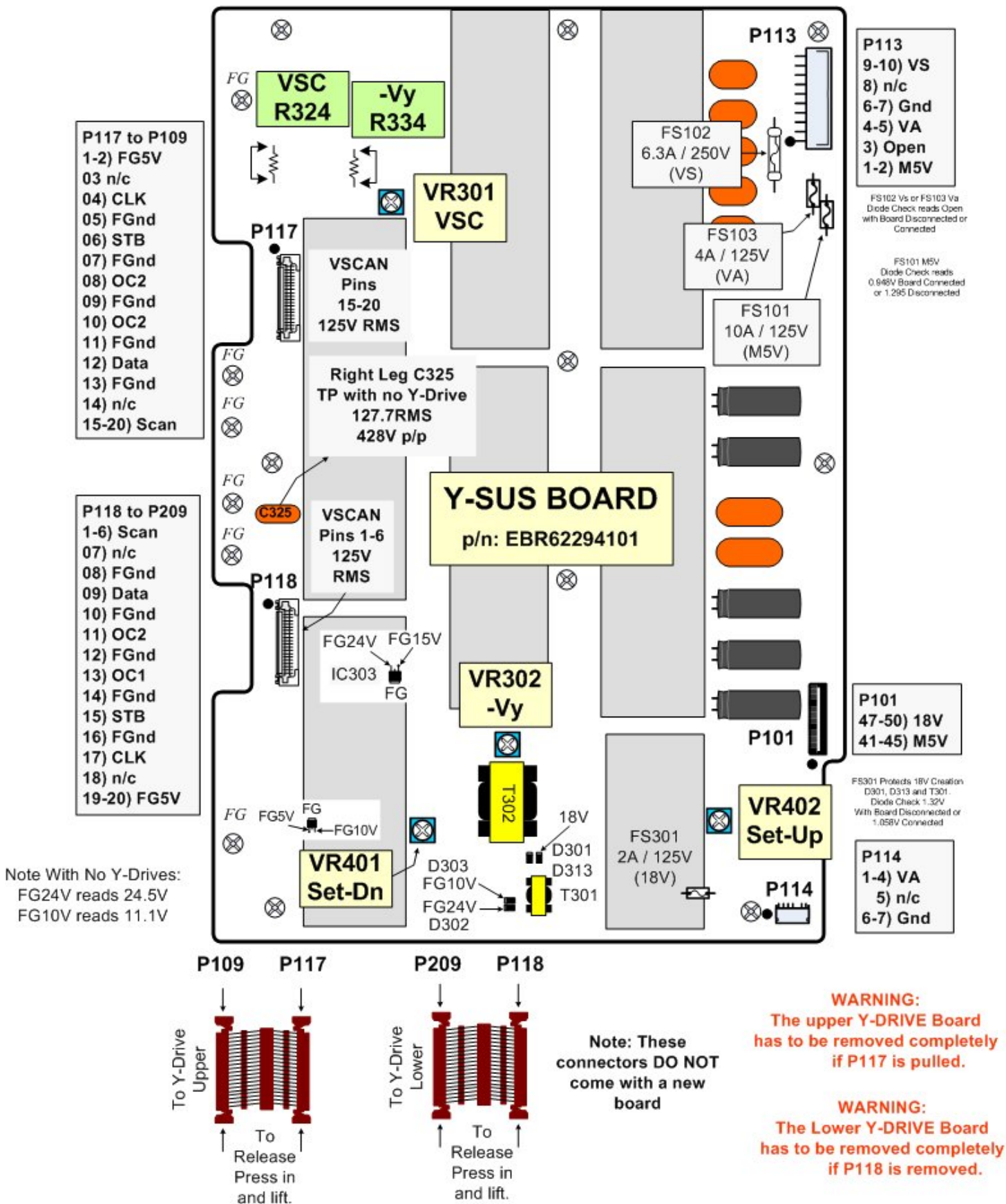   Adjust VR901 until the voltage matches your panel's voltage label.

2) **VA ADJUST:**
   Connect DVM to VA Test Point or pins 6 or 7 of P811 or P812.
   Adjust VR501 until the voltage matches your panel's voltage label.

50R1 PANEL

50R1 Y-SUS BOARD ADJUSTMENT POINTS

50R1 PANEL

VSC R324

-Vy R334

VR301 VSC

P113

P113
9-10) VS
8) n/c
6-7) Gnd
4-5) VA
3) Open
1-2) M5V

FS102 Vs or FS103 Va
Diode Check reads Open
with Board Disconnected or
Connected

FS101 M5V
Diode Check reads
0.948V Board Connected
or 1.295 Disconnected

FS102
6.3A / 250V
(VS)

FS103
4A / 125V
(VA)

FS101
10A / 125V
(M5V)

P117 to P109
1-2) FG5V
03 n/c
04) CLK
05) FGnd
06) STB
07) FGnd
08) OC2
09) FGnd
10) OC2
11) FGnd
12) Data
13) FGnd
14) n/c
15-20) Scan

P117

VSCAN
Pins
15-20
125V RMS

Right Leg C325
TP with no Y-Drive
127.7RMS
428V p/p

C325

VSCAN
Pins 1-6
125V
RMS

Y-SUS BOARD

p/n: EBR62294101

P118 to P209
1-6) Scan
07) n/c
08) FGnd
09) Data
10) FGnd
11) OC2
12) FGnd
13) OC1
14) FGnd
15) STB
16) FGnd
17) CLK
18) n/c
19-20) FG5V

P118

FG24V FG15V

IC303

FG

VR302
-Vy

T302

18V
D301
D313
T301

P101

P101
47-50) 18V
41-45) M5V

FS301 Protects 18V Creation
D301, D313 and T301.
Diode Check 1.32V
With Board Disconnected or
1.058V Connected

VR402
Set-Up

Note With No Y-Drives:
FG24V reads 24.5V
FG10V reads 11.1V

FG FG5V FG
FG10V

VR401
Set-Dn

D303
FG10V
FG24V
D302

FS301
2A / 125V
(18V)

P114

P114
1-4) VA
5) n/c
6-7) Gnd

P109   P117

To Y-Drive Upper

To Release
Press in
and lift.

P209   P118

To Y-Drive Lower

To Release
Press in
and lift.

Note: These
connectors DO NOT
come with a new
board

WARNING:
The upper Y-DRIVE Board
has to be removed completely
if P117 is pulled.

WARNING:
The Lower Y-DRIVE Board
has to be removed completely
if P118 is removed.

50R1 VSC, -Vy ADJUSTMENTS

Example: Use Your Panel's Label

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
   Vs and Va adjustments complete.
2) Place unit into White Wash from the Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as indicated on your panel's voltage label in the upper left of the panel.**
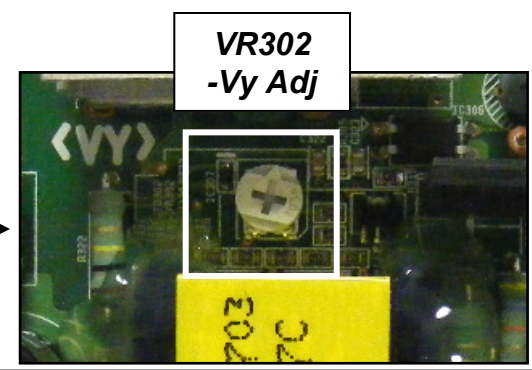
Model : PDP 50R1###
Voltage Setting: 5V/ Va:60/ Vs:203
N.A. / -190 / 150 / N.A. / 115
Max Watt : 450 W (Full White)

-Vy   **VSC**

PROCEDURE: (See figure below for locations)

1) Adjust –Vy VR302. Measured across –Vy TP R334.
   Match your specific Panel's Voltage label ±1V.

2) Adjust VSC VR301. Measured across VSC TPs R324.
   Match your specific Panel's Voltage label ±1V.

Voltage Reads Positive

R324 VSC TP

R334 -Vy TP

VR302 -Vy Adj

Location: Bottom Center of board Just above Transformer

Voltages Reads Positive

VR301 VSC Adj

Location: Top Left of board

50R1 Y Drive Waveform Test Point

The figure below shows a close-up image of the Y-Drive waveform test point on the Y-Drive Upper board. (Waveform TP).
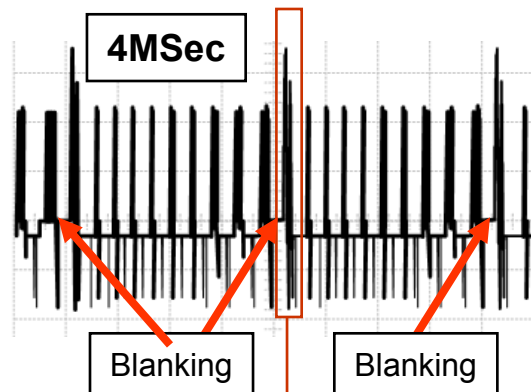There is another on the Lower Y-Drive board.

Set-Up and Set-Down portions of the waveform are adjusted using either of these Test Points.

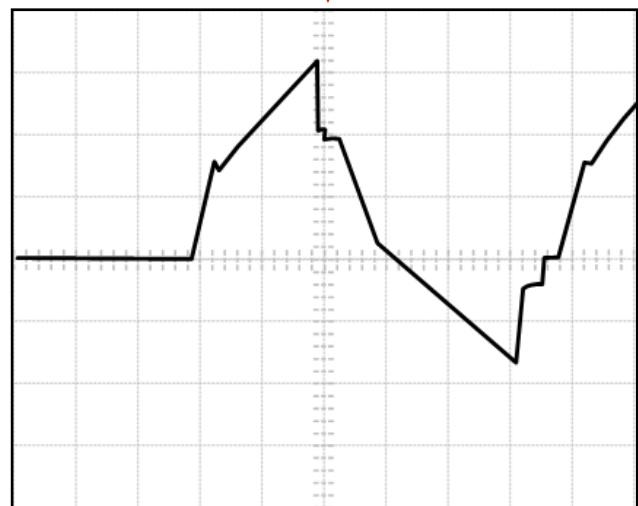| TP LOCATION UNDER 4th HEAT SINK OF UPPER Y-DRIVE |
| :---: |
| **(See next page for adjustment Details)** |

4MSec

| *Waveform TP* |

Blanking   Blanking

67~81 VRms   **502V p/p**

| *Upper or Lower Y-Drive Board* |

40uSec

50R1 PANEL

50R1 Y-DRIVE WAVEFORM ADJUSTMENTS

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
   Vs, Va, -Vy and VSC adjustments should be completed.
2) Place unit into **White Wash** from the Customer's Menu for all adjustments.

See figure below for adjustment locations.
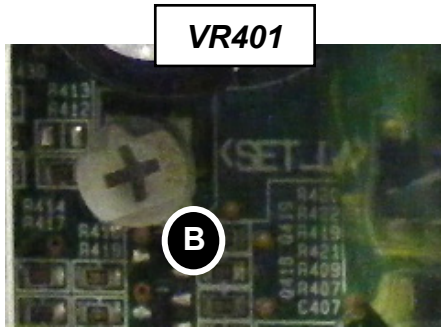
ADJUSTMENT LOCATIONS
(See 3 pages back for Waveform TP locations)

VR402

Ⓐ

VR401

Ⓑ
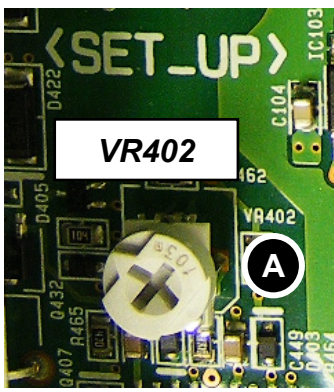
Waveform Test Point
Y-Drive Upper or Lower (Waveform TP)

| VR402 Set-up | 320V p/p ± 5V |

Ⓐ

0V

| VR401 Set-Dn | Ⓑ | 180uSec ± 5uSec |

| 67VAC rms "White" 81VAC rms "Black" | 100V | 100uS | 502V p/p |

ADJUSTMENT LOCATIONS:
   Bottom of the board.

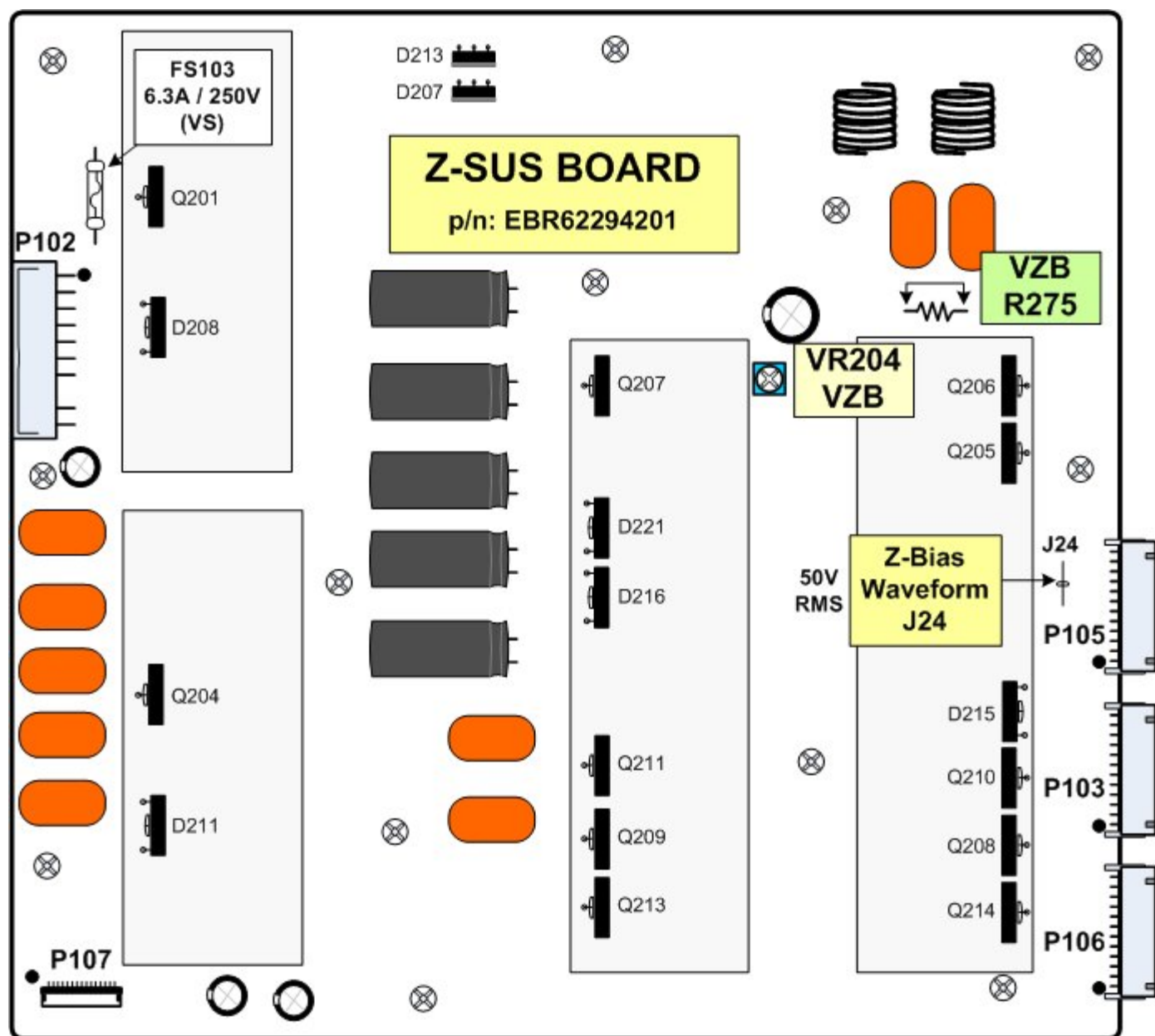**SET-UP ADJUST:**
1) **Adjust VR402 and set the (A) portion of the signal to match the waveform above. (320V p/p ± 5V)**

SET-DN ADJUST:
2) **Adjust VR401 and set the (B) time of the signal to match the waveform above. (180uSec ± 5uSec)**

50R1 PANEL

50R1 Z-SUS ADJUSTMENT POINTS

FS103
6.3A / 250V
(VS)

Q201

D213
D207

Z-SUS BOARD
p/n: EBR62294201

VZB
R275

P102

D208

Q207

VR204
VZB

Q206

Q205

D221

D216

Z-Bias
Waveform
J24

J24

50V
RMS

P105

Q204

Q211

D215

Q210

P103

D211

Q209

Q208

Q213

Q214

P106

P107

50R1 PANEL

P102	
1-2) VS	(202V)
03) n/c	(n/c)
4-5) Gnd	(Gnd)
6-7) n/c	(n/c)
08) Gnd	(Gnd)
09-10) n/c	(n/c)

P107	
1-2) 18V	(18V)
03) n/c	(n/c)
4-5) M5V	(M5V)
6-7) Gnd	(Gnd)
08) SUS_DN	(0.48V)
09) CTRL_EN	(0.48V)
10) SUS_UP	(0.22V)
11) VZB2	(0V)
12) ER_DN	(0.135V)
13) VZB1	(2.34V)
14) ER_UP	(0.239V)
15) ZBIAS	(2.14V)

50R1 Z-SUS (Z-Bias) ADJUSTMENT:

Example: Use Your Panel's Label

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.

2) Place unit into White Wash from the Customer's Menu for all adjustments.

3) Be sure to use all adjustment values as indicated on the panel voltage label in the upper right hand corner of the panel.
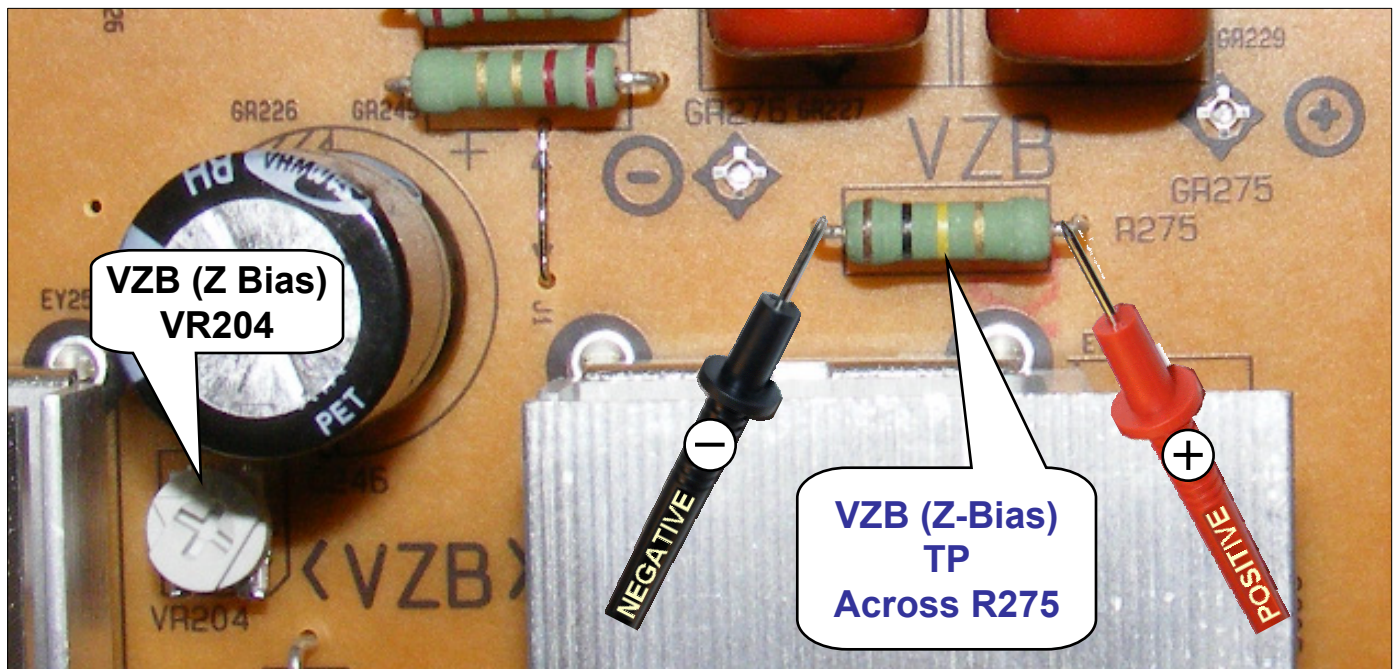
```
Model : PDP 50R1###
Voltage Setting: 5V/ Va:60/ Vs:203
N.A. / -190 / 150 / N.A. / 115
Max Watt : 450 W (Full White)
```

VZB (Z Bias)

PROCEDURE: (See preceding page for locations)

1. **Place DC Volt meter on VZB TP (Across R275).**
2. **Adjust VZB (Z Bias) VR204 in accordance with your Panel's voltage label.**

Top Right of Z-SUS Board

VZB (Z Bias) VR204

NEGATIVE − VZB (Z-Bias) TP Across R275 + POSITIVE

Intentionally left blank

50R3 PANEL

QUICK REFERENCE

ALIGNMENT HAND BOOK

MODELS USING THE 50R3 PANEL

50PZ950

Intentionally left blank

50R3 SMPS Board Adjustment Points

Set should be in "White Wash"

VS and VA are adjustable and should be adjusted to the correct values as indicated by your Panel's Voltage Label (Top Center of the Panel). Example shown on the right.

Example: Use Your Panel's Label

Model : PDP 50R3###
Voltage Setting: 5V/ Va:55/ Vs:201
N.A. / -190 / 150 / N.A. / 130
Max Watt : 360 W (Full White)

VA
VR502

VS
VR901

Always adjust "Highest to Lowest" voltages.
VS and VA adjustment resistors are shown in the drawing below.
They are located at the top Right of the board.
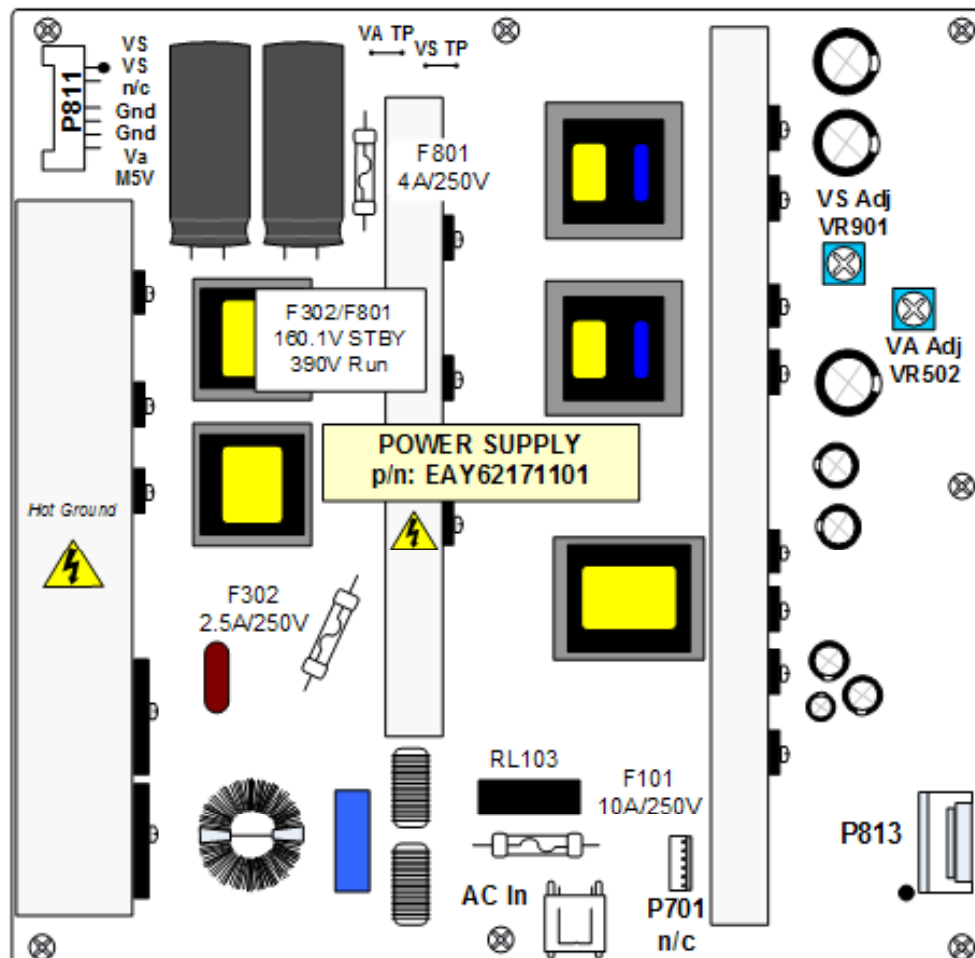
1) **VS ADJUST:**
   Connect DVM to VS Test Point or pins 1 or 2 of P811.
   Adjust VR901 until the voltage matches your panel's voltage label.

2) **VA ADJUST:**
   Connect DVM to VA Test Point or pins 6 of P811.
   Adjust VR502 until the voltage matches your panel's voltage label.

50R3 Y-SUS Board Adjustment Points

P218
7-8) Gnd
6) n/c
4-5) VS
3) n/c
1-2) ER

P210
7) M5V
6) VA
4-5) Gnd
3) n/c
1-2) VS

WARNING: The upper and lower Y-DRIVE Board has to be Removed Completely if P213 is pulled.

VR501 VSC

+Vy R527

P214
Pins 3-12   FGnd
Pins 1-2   FG10.9V

P214

10.9VFG J84

P218

FS203 (VS) 6.3A / 250V

D502
D503   T500
D505
D500
IC501   IC500
D501
VR500 +Vy
D511 10.9VFG
T502
23.77VFG
D512
18.34V
D515

VSC R548

P215
Pins 9-12   VSCAN
Pin 8   n/c
Pins 1-7   FGnd

P215

FS202 (M5V) 10A / 125V

IC302

FS501 (M5V) 2A / 125V

FS201 (VA) 4A / 125V

P217
Pins 6-12   FGnd
Pin 5   n/c
Pins 1-4   VSCAN

VScan   FGnd
C 540
P217

VR401 Set-Dn

VR402 Set-Up

Y-SUS EBR69839001

P216
Pins 11-12   VSCAN
Pins 1-10   FGnd

P216

1) M5V
2) M5V
3) OC2_B
4) Gnd
5) DATA_B
6) Gnd
7) OC1_B
8) OC2_T
9) Gnd
10) DATA_T
11) Gnd
12) OC1_T
13) Gnd
14) CLK
15) STB

Gnd
J113   J81   CTRL_OE

P102

Note With No Y-Drives:
FG 23.85V reads 23.85V
FG 10.8V reads 11.196V

P213
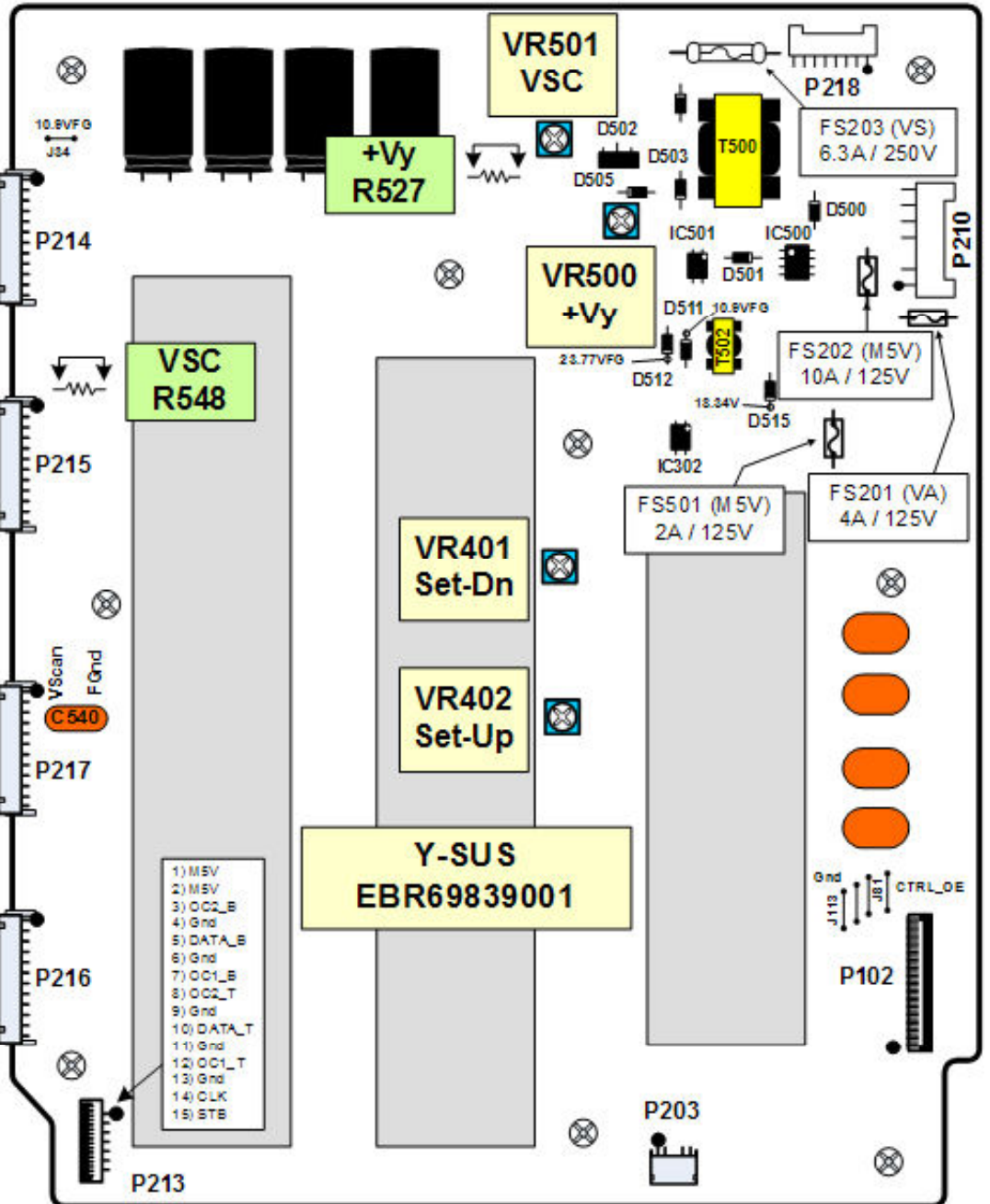
P203

To run the 18V and Floating Ground 24V and 10V, Ground CTRL_OE and supply 5V to Y-SUS

P203
1-2) Gnd
3) n/c
4-5) VA

P102
6-8) 18V
3-5) M5V

50R3 PANEL

50R3 VSC, -Vy Adjustments

Example: Use Your Panel's Label

Model : PDP 50R3###
Voltage Setting: 5V/ Va:55/ Vs :201
N.A. / -190 / 150 / N.A. / 130
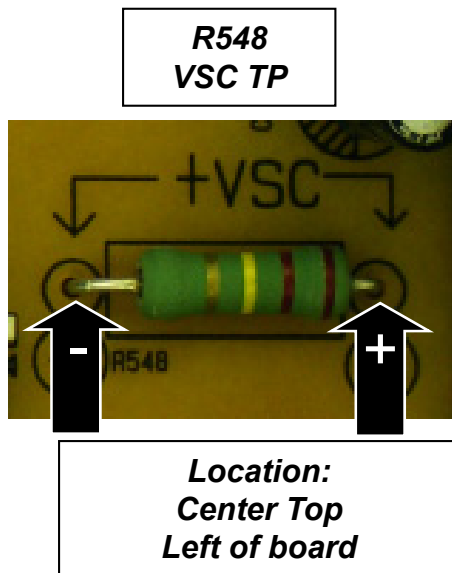Max Watt : 360 W (Full White)

-Vy   *VSC*

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes
   before making adjustments.
   Vs and Va adjustments complete.
2) Place unit into White Wash from the
   Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as**
   indicated on your panel's voltage label in
   the top center of the panel.

PROCEDURE: (See figure below for locations)

1) Adjust –Vy VR500. Measured across –Vy TP R527.
   Match your specific Panel's Voltage label ±1V.

2) Adjust VSC VR501. Measured across VSC TPs R548.
   Match your specific Panel's Voltage label ±1V.

Voltage Reads Positive

R548
VSC TP

-Vy Voltages Reads Positive

VR501
VSC Adj

R527
-Vy TP

VR500
-Vy Adj

Location:
Center Top
Left of board
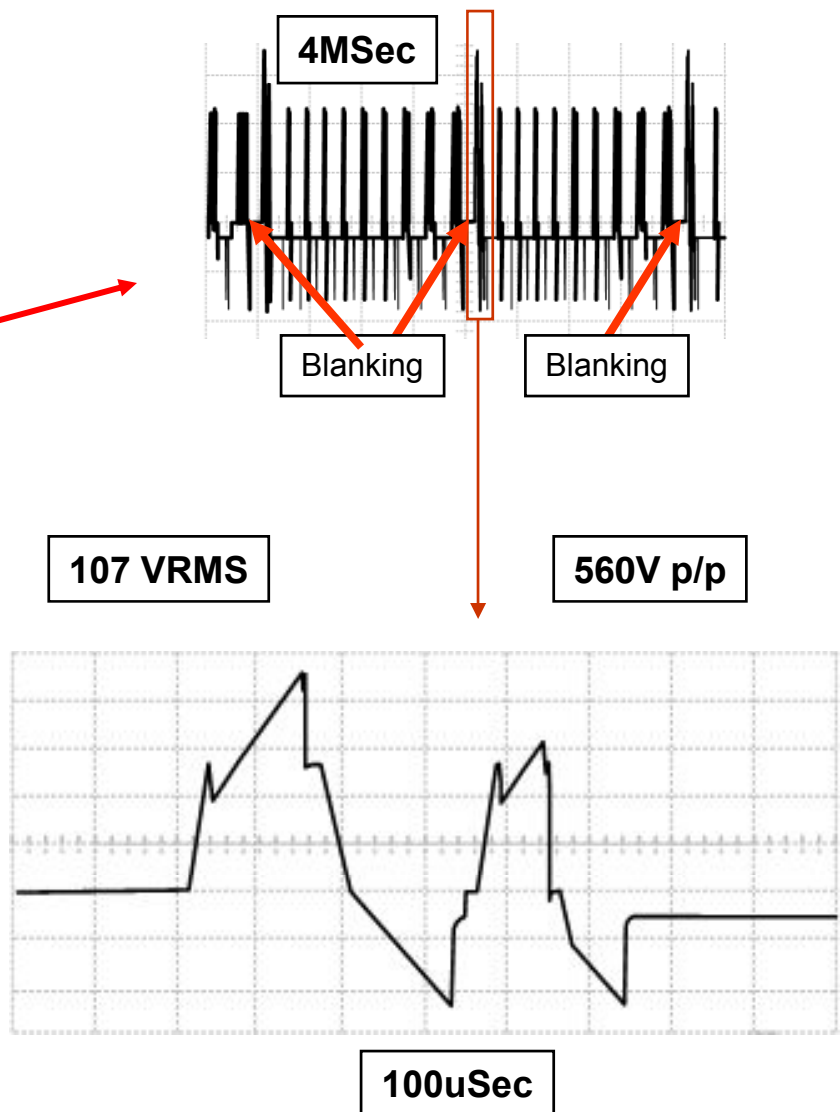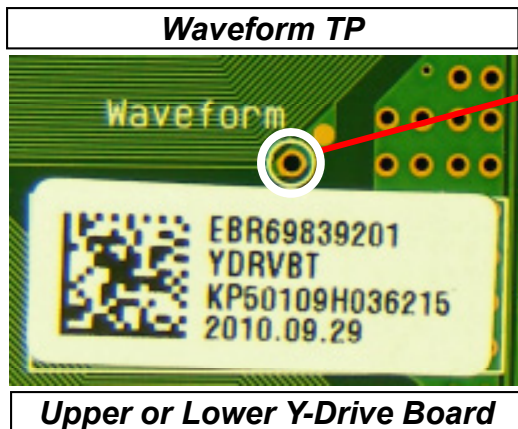
Location: Top Right
of board

50R3 PANEL
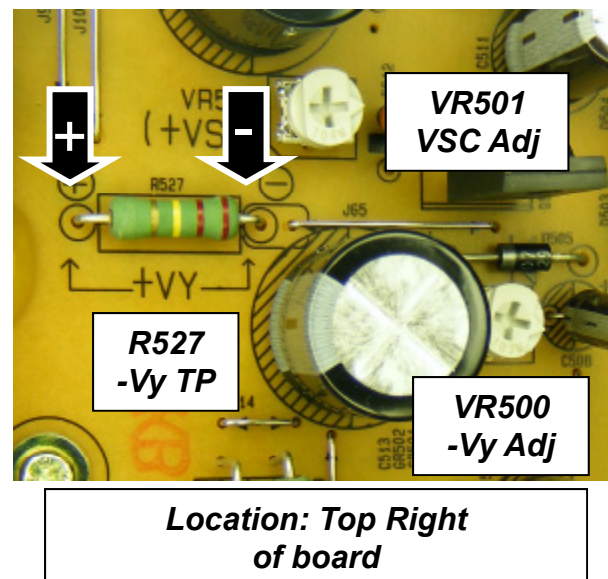
50R3 Y Drive Waveform Test Point

The figure below shows a close-up image of the Y-Drive waveform test point on the Y-Drive Upper board. (Waveform TP).
There is another on the Lower Y-Drive board.

Set-Up and Set-Down portions of the waveform are adjusted using either of these Test Points.

> **TP Location under the 2nd Buffer from the top of the Lower Y-DRIVE or under the 4th Buffer from the top of the Upper Y-Drive Board. (See next page for adjustment Details)**

4MSec

Blanking

Blanking

Waveform TP

Upper or Lower Y-Drive Board

EBR69839201
YDRVBT
KP50109H036215
2010.09.29

107 VRMS

560V p/p

100uSec

50R3 Using VS_DA as external trigger to lock scope

Note, this TP (VS_DA) can be used as an External Trigger for scope when locking onto the Y-Scan (Scan) or the Z-Drive signal.

This signal can also be used to help lock the scope when observing the LVDS video signals.

1V per/div	10mSec	3.62V p/p

50R3 PANEL
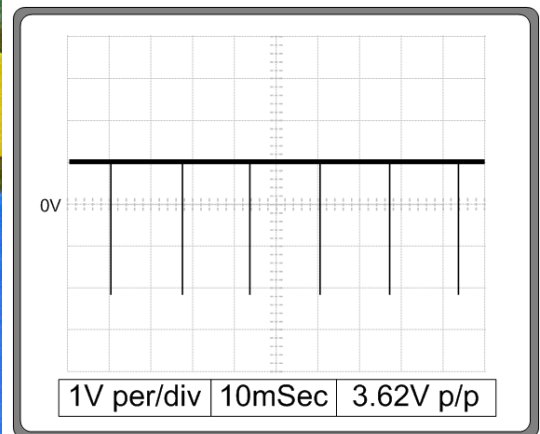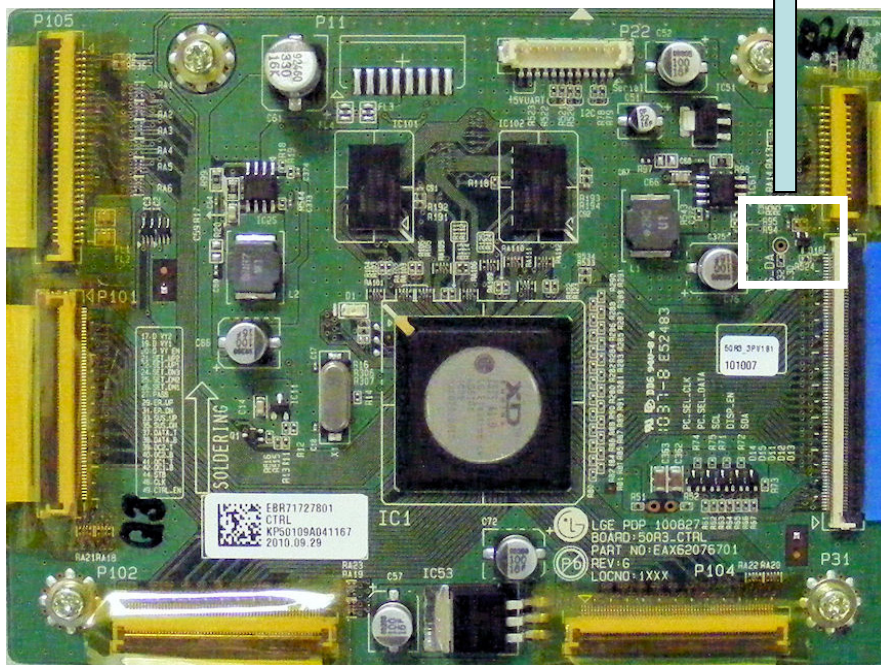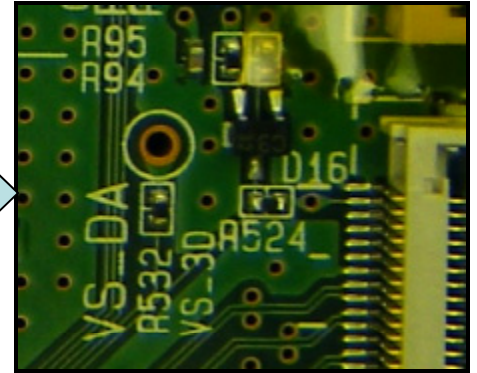
50R3 Y-DRIVE Signal Waveform Adjustments

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
    Vs, Va, -Vy and VSC adjustments should be completed.
2) Place unit into **White Wash** from the Customer's Menu for all adjustments.

See figure below for adjustment locations.

ADJUSTMENT LOCATIONS
(See 4 pages back for Waveform TP locations)

50R3 PANEL

VR401

B

VR402
Set-up

VR401
Set-Dn

A

VR402

Waveform Test Point
Y-Drive Upper or Lower (Waveform TP)

345V p/p ± 5V

A

0V

B

180uSec ± 5uSec

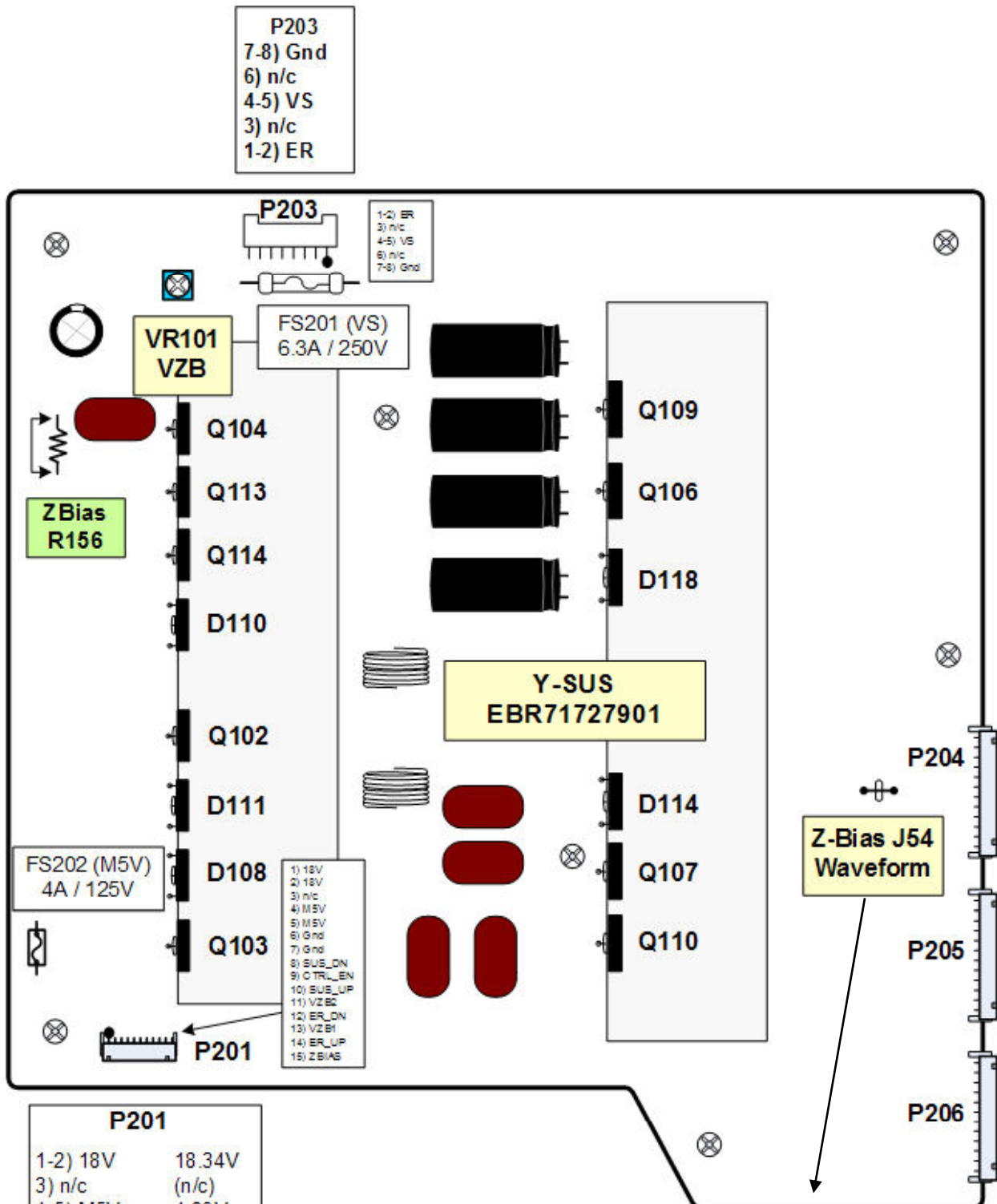| 107VRMS	100V	100uS	560V p/p
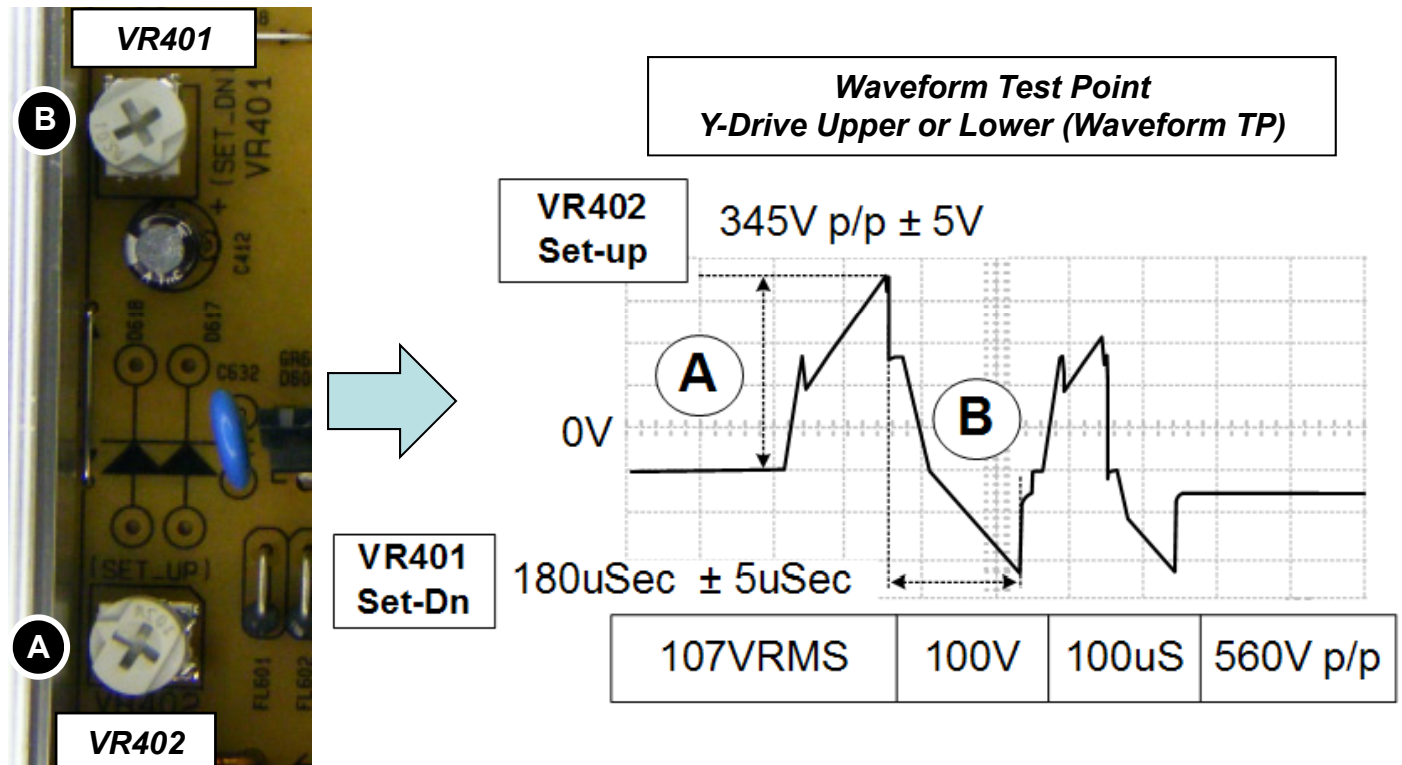
ADJUSTMENT LOCATIONS:
   Center of the board.

SET-UP ADJUST:
1) Adjust VR402 and set the (A) portion of the signal to match the
   **waveform above. (345V p/p ± 5V)**

SET-DN ADJUST:
2) Adjust VR401 and set the (B) time of the signal to match the waveform
    above. (180uSec ± 5uSec)

50R3 Z-SUS Board Adjustment Points

P203
7-8) Gnd
6) n/c
4-5) VS
3) n/c
1-2) ER

P203

1-2) ER
3) n/c
4-5) VS
6) n/c
7-8) Gnd

FS201 (VS)
6.3A / 250V

VR101 VZB

Z Bias R156

Q104
Q113
Q114
D110
Q102
D111

FS202 (M5V)
4A / 125V

D108
Q103

Q109
Q106
D118

Y-SUS EBR71727901

D114
Q107
Q110

1) 18V
2) 18V
3) n/c
4) M5V
5) M5V
6) Gnd
7) Gnd
8) SUS_DN
9) CTRL_EN
10) SUB_UP
11) VZB2
12) ER_DN
13) VZB1
14) ER_UP
15) ZBIAS

P201

50R3 PANEL

P204

Z-Bias J54 Waveform

P205

P206

P201

Pin	Signal	Voltage
1-2)	18V	18.34V
3)	n/c	(n/c)
4-5)	M5V	4.89V
6-7)	Gnd	Gnd
8)	SUS_DN	0.73V
9)	CTRL_EN	0.06V
10)	SUS_UP	0.15V
11)	VZB2	2.49V
12)	ER_DN	0.1V
13)	VZB1	2.53V
14)	ER_UP	0.11V
15)	ZBIAS	1.89V

47-52VRMS

50V per/div

2MSec per/div

288V p/p
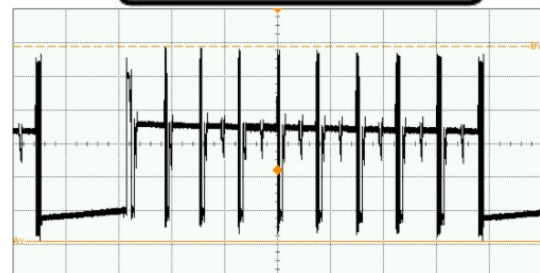
# 50R3 Z-SUS (Z-Bias) Adjustment

PREPARATION:

Example: Use Your Panel's Label

Model : PDP 50R3###
Voltage Setting: 5V/ Va:55/ Vs :201
N.A. / -190 / 150 / N.A. / 130
Max Watt : 360 W (Full White)

VZB (Z Bias)

1) Pre-Heat unit for at least 10 Minutes before making adjustments.

2) Place unit into White Wash from the Customer's Menu for all adjustments.

3) Be sure to use all adjustment values as indicated on the panel voltage label in the top center of the panel.

PROCEDURE: (See preceding page for locations)

1. **Place DC Volt meter on VZB TP (Across R156).**
2. **Adjust VZB (Z Bias) VR101 in accordance with your Panel's voltage label.**

Location: Top Left of Z-SUS Board

VZB (Z Bias) VR101

NEGATIVE

POSITIVE

VZB (Z-Bias) TP Across R275
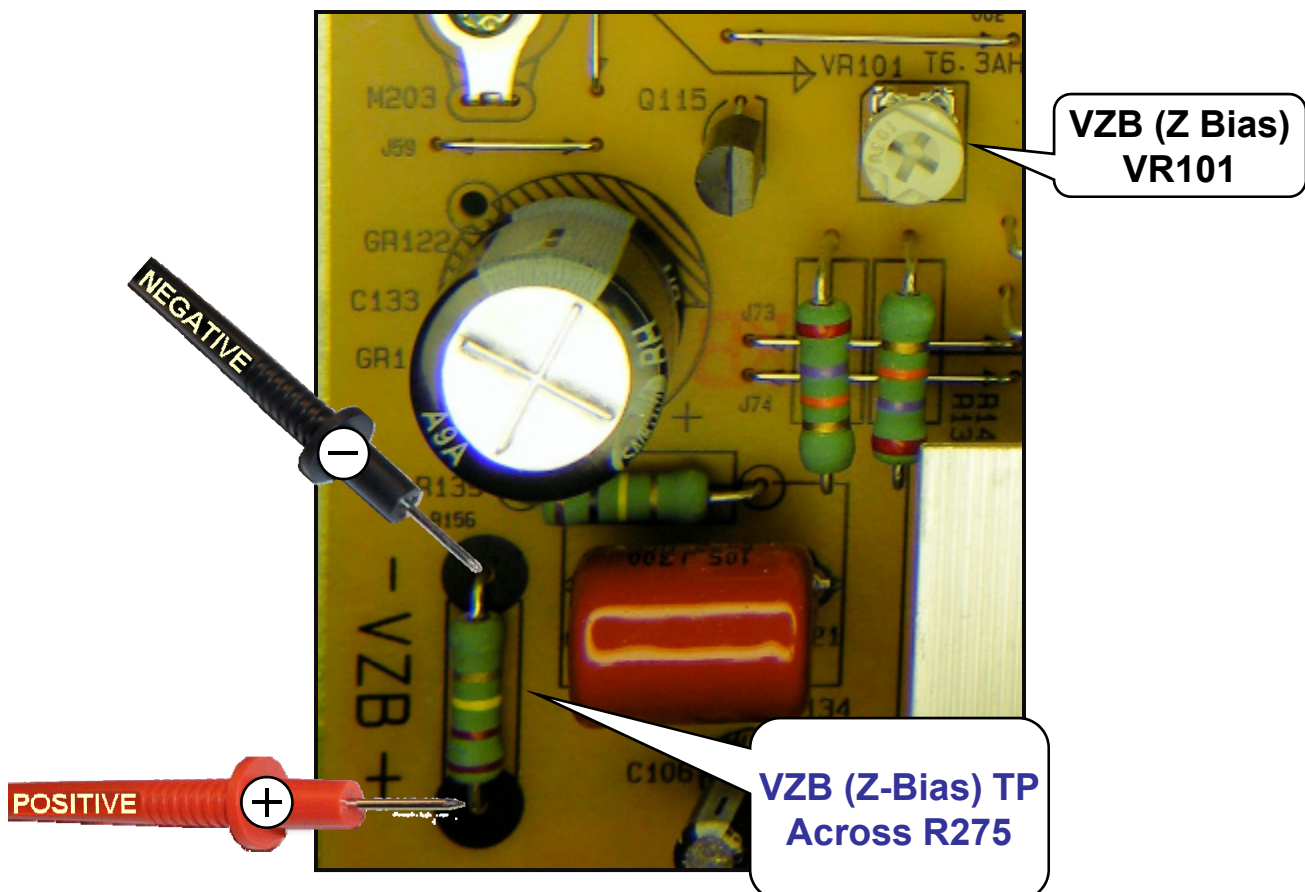
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50T1 PANEL

QUICK REFERENCE

ALIGNMENT HAND BOOK

MODELS USING THE 50T1 PANEL

50PJ340 / 50PJ350

LG
Life's Good

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50T1 SMPS BOARD ADJUSTMENT POINTS

Set should be in "White Wash"

These two voltages are adjustable and should be adjusted to the correct values as indicated by your Panel's Voltage Label. Example shown on the right.
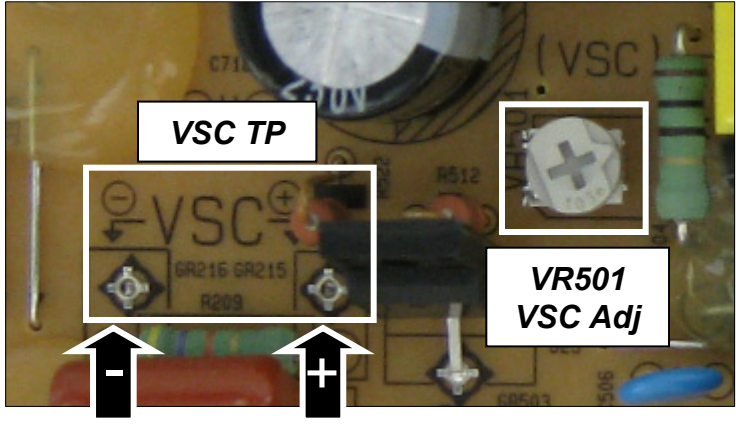
Example: Use Your Panel's Label

Model : PDP 50T1###
Voltage Setting: 5V/ Va:60/ Vs:206
N.A. / -198 / 135 / N.A. / 95
Max Watt : 330 W (Full White)

VA   VS
VR502   VR901

Always adjust "Highest to Lowest" voltages.
VS and VA adjustment resistors are shown in the drawing below.
They are located at the top Right of the board.

1) **VS ADJUST:**
   Connect DVM to VS Test Point or pins 1 or 2 of P812.
   Adjust VR901 until the voltage matches your panel's voltage label.

2) **VA ADJUST:**
   Connect DVM to VA Test Point or pins 6 or 7 of P812.
   Adjust VR502 until the voltage matches your panel's voltage label.

50T1 PANEL

50T1 Y-SUS BOARD ADJUSTMENT POINTS

50T1 PANEL

P211

D 401

VR402 Set-Up

FG

Scan

FS203 VS
Diode Check reads Open with
Board Disconnected or Connected

FS203 4A
VS

D 409

D 407

P210

Y-SUS BOARD

p/n: EBR63039801

FS201 Va
Diode Check reads Open with
Board Disconnected or Connected

FS201 10A
VA

FS202 M 5V
Diode Check reads
0.97V Board Connected
or 1.19 Disconnected

FS202
10A
5VDC

-Vy TP

TP

VR501 VSC

D 504

VR401 Set-Dn

D 503

VSC TP

ZD 501

T302

IC503

VR502 -Vy

VSC
TP

VSC

FG

D 502

Q503

IC 502

IC 302

D 501

FS204 2A
16VDC

P101

Q502

D 515

IC508

1 2 3

D 513

D 511

I502

D 514

D 512

FS204 Protects 16V Creation
D501 and IC501.
Diode Check 1.61V
With Board Disconnected or
1.59V Connected

IC509

P212

P203

50T1 VSC, -Vy ADJUSTMENTS

Example: Use Your Panel's Label

Model : PDP 50T1###
Voltage Setting: 5V/ Va:60/ Vs:206
N.A. / -198 / 135 / N.A. / 95
Max Watt : 330 W (Full White)

-Vy   *VSC*
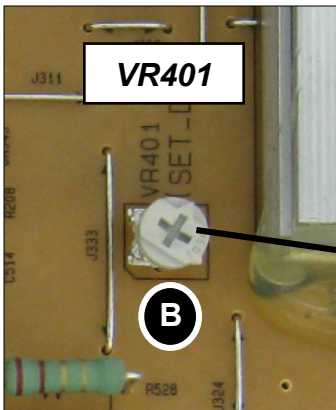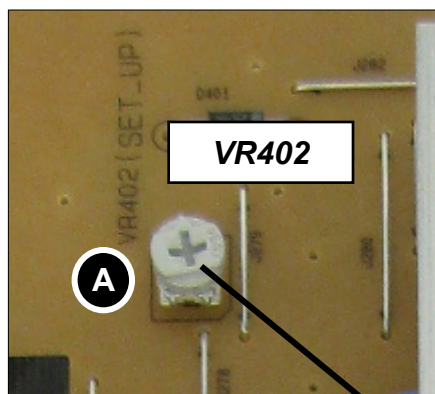
PREPARATION:

1) Pre-Heat unit for at least 10 Minutes
   before making adjustments.
   Vs and Va adjustments complete.
2) Place unit into White Wash from the
   Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as
   indicated on your panel's voltage label in
   the upper left of the panel.**

PROCEDURE: (See figure below for locations).
             (See previous page for Location details)

1) Adjust –Vy VR502. Measured across –Vy TPs.
   Match your specific Panel's Voltage label ±1V.

2) Adjust VSC VR501. Measured across VSC TPs.
   Match your specific Panel's Voltage label ±1V.

Voltages Reads Positive

*Location: Bottom Left of board
Just to the left of Transformer*

VSC TP

*VR501
VSC Adj*

Voltages Reads Positive

*-Vy
TP*

*VR502
-Vy Adj*
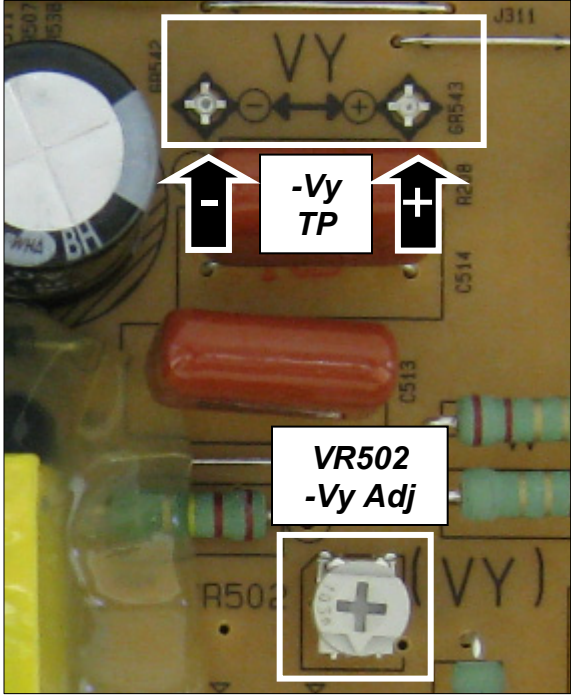
*Location: Bottom Center of board
Just to the right of Transformer*

50T1 Y Drive Waveform Test Point

The figure below shows a close-up image of the Y-Drive waveform test point on the Y-Drive Upper board. (Waveform TP).
There is another on the Lower Y-Drive board.

Set-Up and Set-Down portions of the waveform are adjusted using either of these Test Points.

> **TP LOCATION UNDER 4th BUFFER OF UPPER Y-DRIVE**
> **(See next page for adjustment Details)**

2MSec

Waveform TP

Blanking

Blanking

75~90 VRms

548V p/p
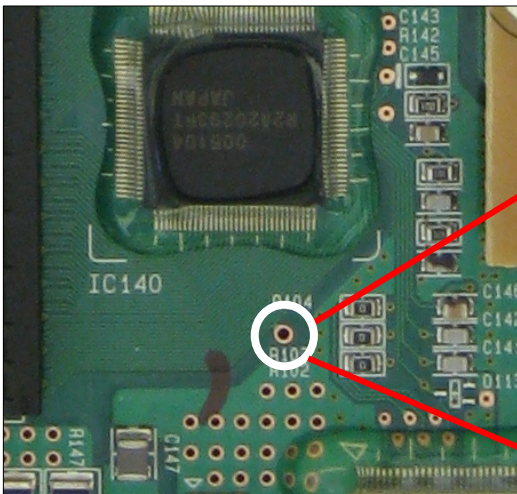
Upper Y-Drive Board at the Bottom of the Board
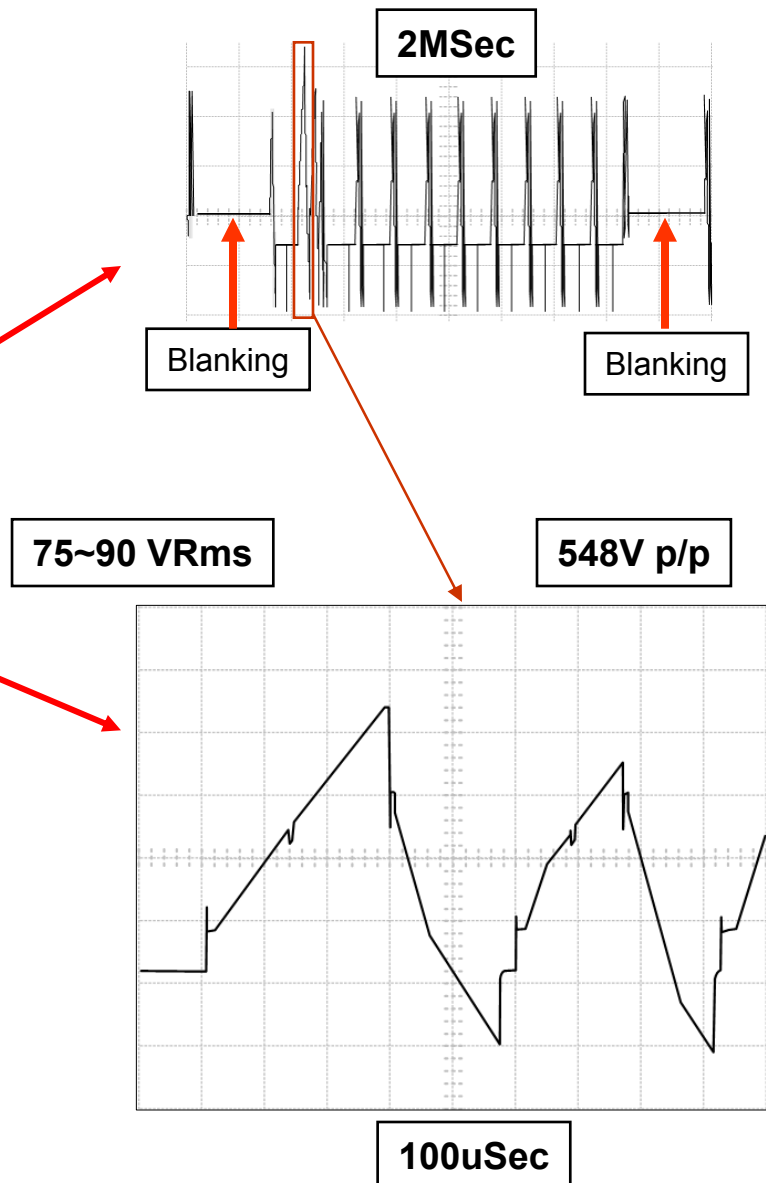
100uSec

50T1 PANEL

50T1 Y-DRIVE WAVEFORM ADJUSTMENTS

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
   Vs, Va, -Vy and VSC adjustments should be completed.
2) Place unit into **White Wash** from the Customer's Menu for all adjustments.

See figure below for adjustment locations.

ADJUSTMENT LOCATIONS
(See 3 pages back for Waveform TP locations)

50T1 PANEL

VR402

Ⓐ

VR401

Ⓑ

ADJUSTMENT LOCATION:
Bottom center of the board.

Waveform Test Point
Y-Drive Upper or Lower (Waveform TP)

Waveform TP on the Y-Drive Board

VR402 Set-up	224V p/p ± 5V

Ⓐ

0V

VR401 Set-Dn	Ⓑ	180uSec ± 5uSec

75VAC rms "White" 90VAC rms "Black"	100V	100uS	548V p/p
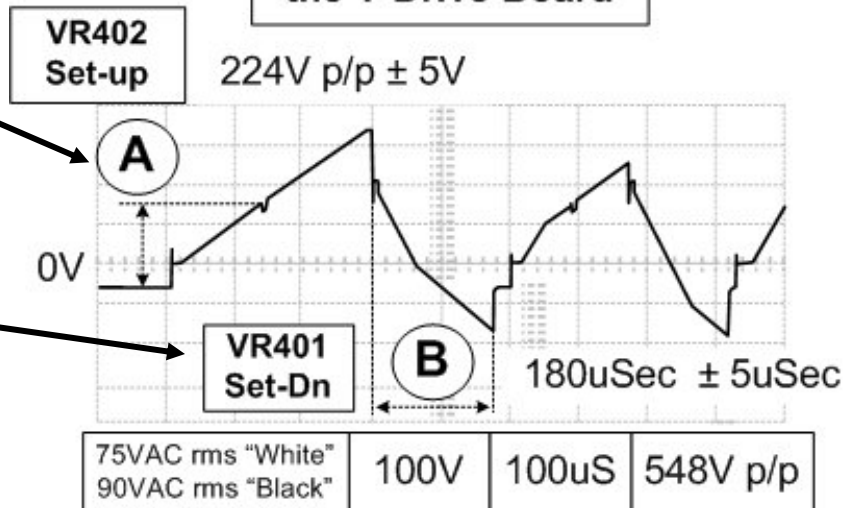
SET-UP ADJUST:
1) Adjust VR402 and set the (A) portion of the signal to match the waveform above. (224V p/p ± 5V)

SET-DN ADJUST:
2) Adjust VR401 and set the (B) time of the signal to match the waveform above. (180uSec ± 5uSec)

50T1 Z-SUS ADJUSTMENT POINTS

FS1
VS

D309

4A /
250V

P2

P4

D312

Z-SUS BOARD
p/n: EBR63040301

Z-Bias
Waveform
J36

VZB
TP

VR201
VZB

P1

P5

P3

50T1 PANEL
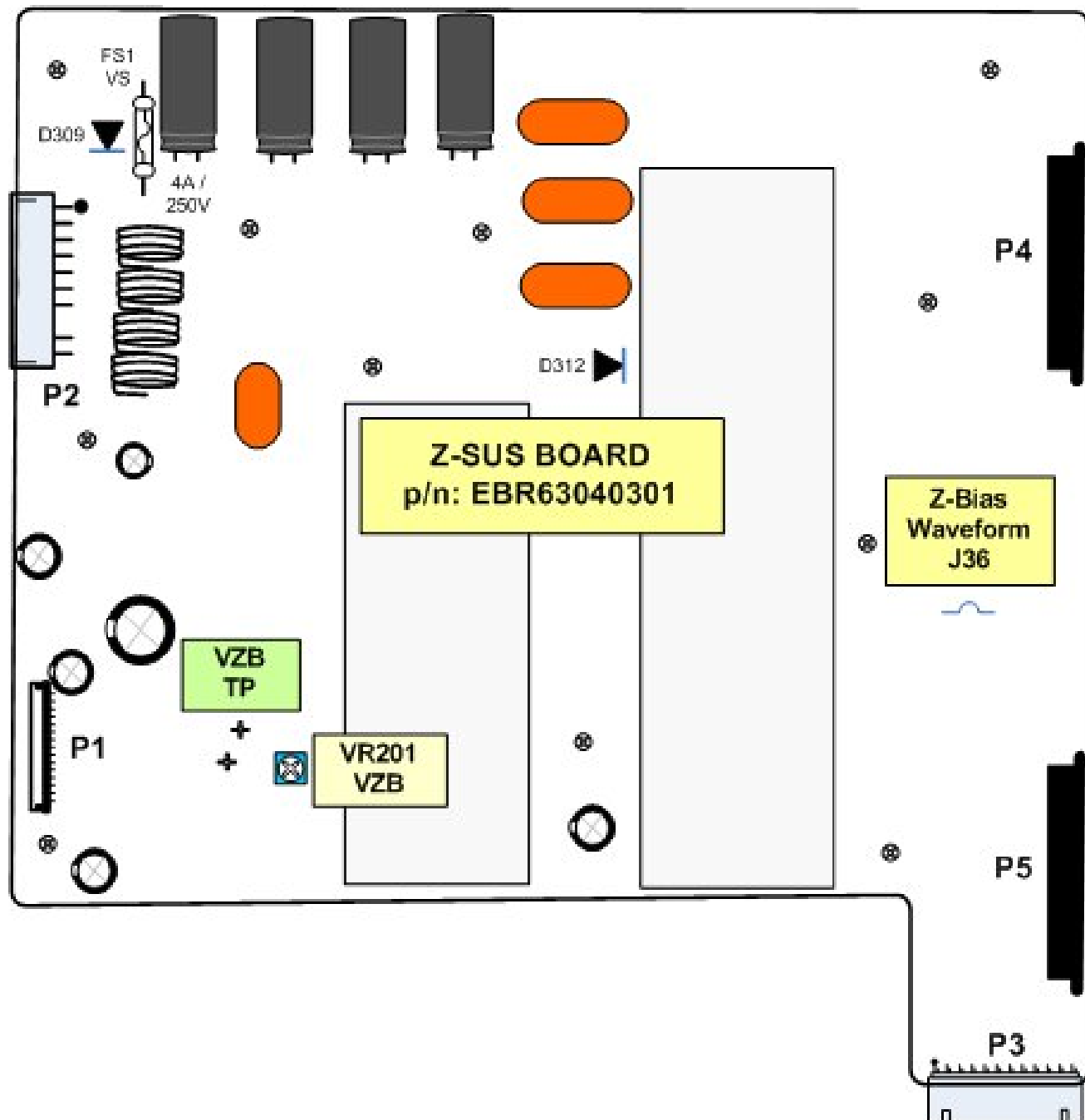
50T1 Z-SUS (Z-Bias) ADJUSTMENT: Example: Use Your Panel's Label

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.

2) Place unit into White Wash from the Customer's Menu for all adjustments.

3) Be sure to use all adjustment values as indicated on the panel voltage label at the top center of the panel.

PROCEDURE: (See preceding page for locations)

1. Place DC Volt meter between **VZB TPs.**
2. **Adjust VZB (Z Bias) VR201** in accordance with your Panel's voltage label.

Model : PDP 50T1###
Voltage Setting: 5V/ Va:60/ Vs:206
N.A. / -198 / 135 / N.A. / 95
Max Watt : 330 W (Full White)

VZB (Z Bias)

Bottom Left of Z-SUS Board

VZB (Z-Bias) TP

VZB (Z Bias) VR201
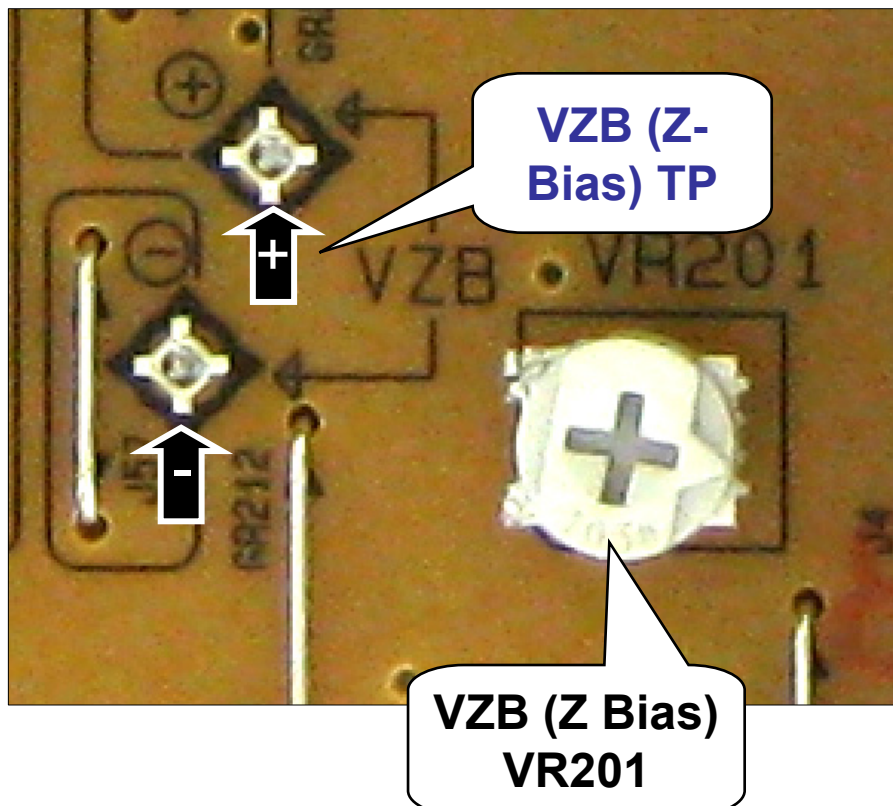
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50X2 PANEL
QUICK REFERENCE
ALIGNMENT SECTION

MODELS USING THE 50X2 PANEL

50PM2D
50PX4D / 4DG / 4DGNB / 4DGS / 4DGW / 4DNB
50PX5D / 5DAB
50PY2DR / 2DR2 / 2DR2NA / 2DRUA / 2DRW1
DN50PX13
DN50PY10 / DN50PY11 / DN50PY12N
DN50PZ66
DT50PY10
DU50PX10 / DU50PX41S
DU50PY10 / DW50PY10
MT50PM20 / M10
MZ50PM10 / RP50PX10H
RP50PY10 / RT50PX10
RZ50PX10 / RZ50PY10
TN50PY20 / TU50PY22

Note: This series of models may have a Duel-Scan or Single-Scan Panel. Both versions are included. Be sure to locate the correct Y-SUS and Z-SUS for your panel.

LG
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50X2 SMPS BOARD ADJUSTMENT POINTS

VCC, VS and VA voltages are adjustable
and should be adjusted to the
correct values as indicated by the panel
label. Example shown to the right.
Always adjust "Highest to Lowest" voltages.
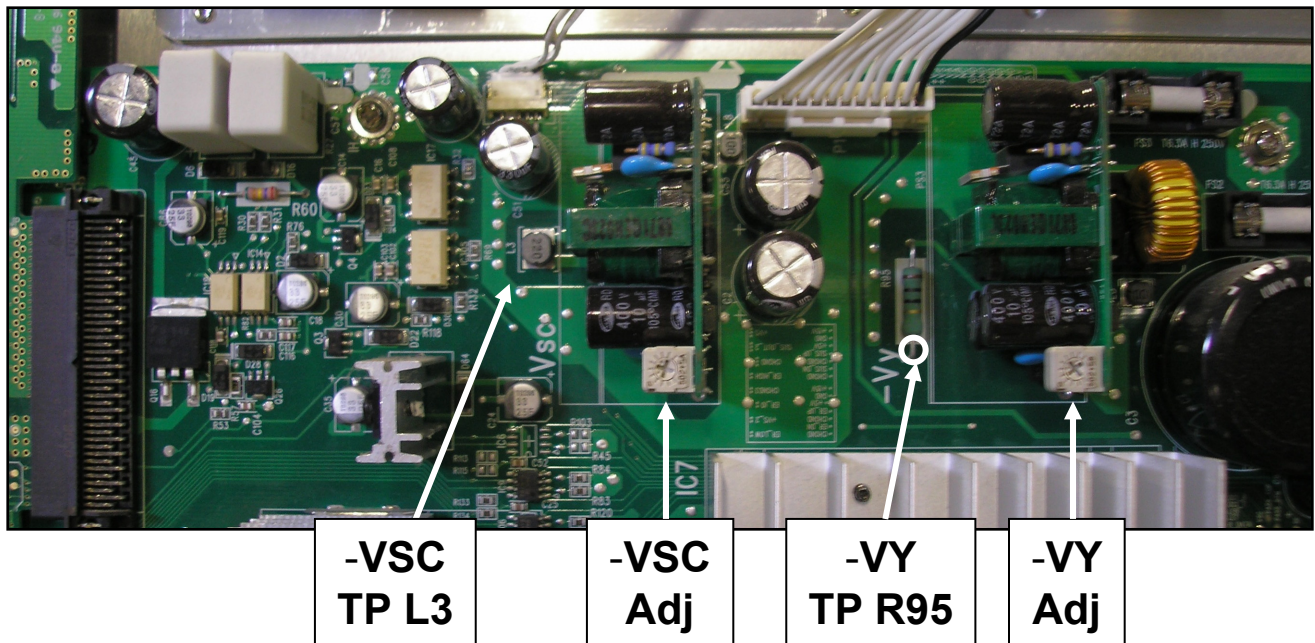
Model : PDP 50X2###
All Voltage: DC (=) 5.2V
Va : 65V   Vs : 186V
240 / -105 / 115 / N.A. / N.A.
Max Watt : 380 W (Full White)

VCC, VS and VA adjustment resistors are shown in the drawing
below. They are located towards the top left hand side of the board
and VCC towards the bottom left hand side.
RV401 is for VS, RV501 is for VA and RV601 is for VCC.

Set should be in "Full White Raster"

1) **VCC 5.2V ADJUST:** Connect DVM to pin 3 or 4 of P804. Adjust RV601
until the voltage matches the panel's voltage label (5.2V).

2) **VS ADJUST:** Connect DVM to pin 1, 2 or 3 of P805. Adjust RV401 until
the voltage matches the panel's voltage label.

3) **VA ADJUST:** Connect DVM to pin 9 or 10 of P805. Adjust RV501 until
the voltage matches the panel's voltage label.

All measurements taken from Chassis Gnd.

50X2 PANEL

50X2 Y-SUS BOARD ADJUSTMENT POINTS

VSC TP
L3
To Gnd

P5

L3

PS5

P11

PS3

P3

P4

P6

P1

VSC Adj

-Vy TP
R95
To Gnd

-Vy Adj

Y-SUS PWB
6871QYH038B

B41
Waveform TP

V Set Dn
VR2

V Set Up
Adj VR1

Set Up
DC Adj

R88

R100

PS2

P7

Set-Up DC adjust.
Between the bottoms of
R88 and R100

50X2 PANEL
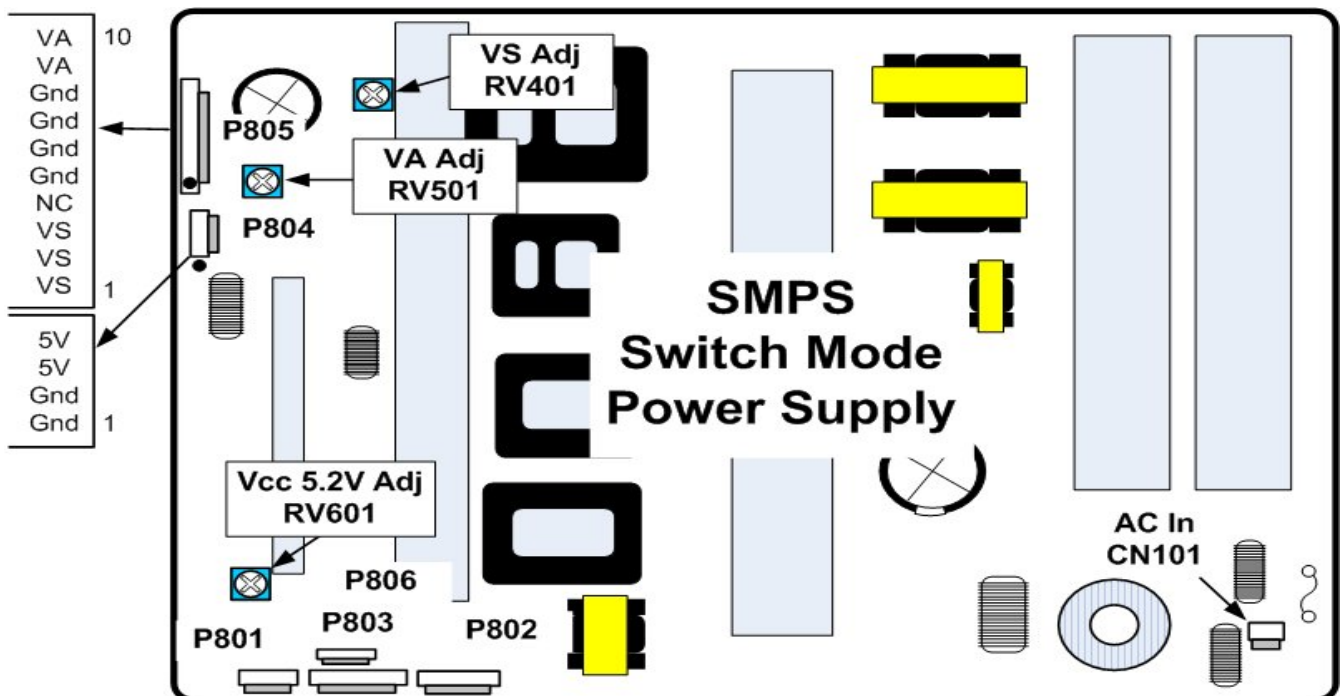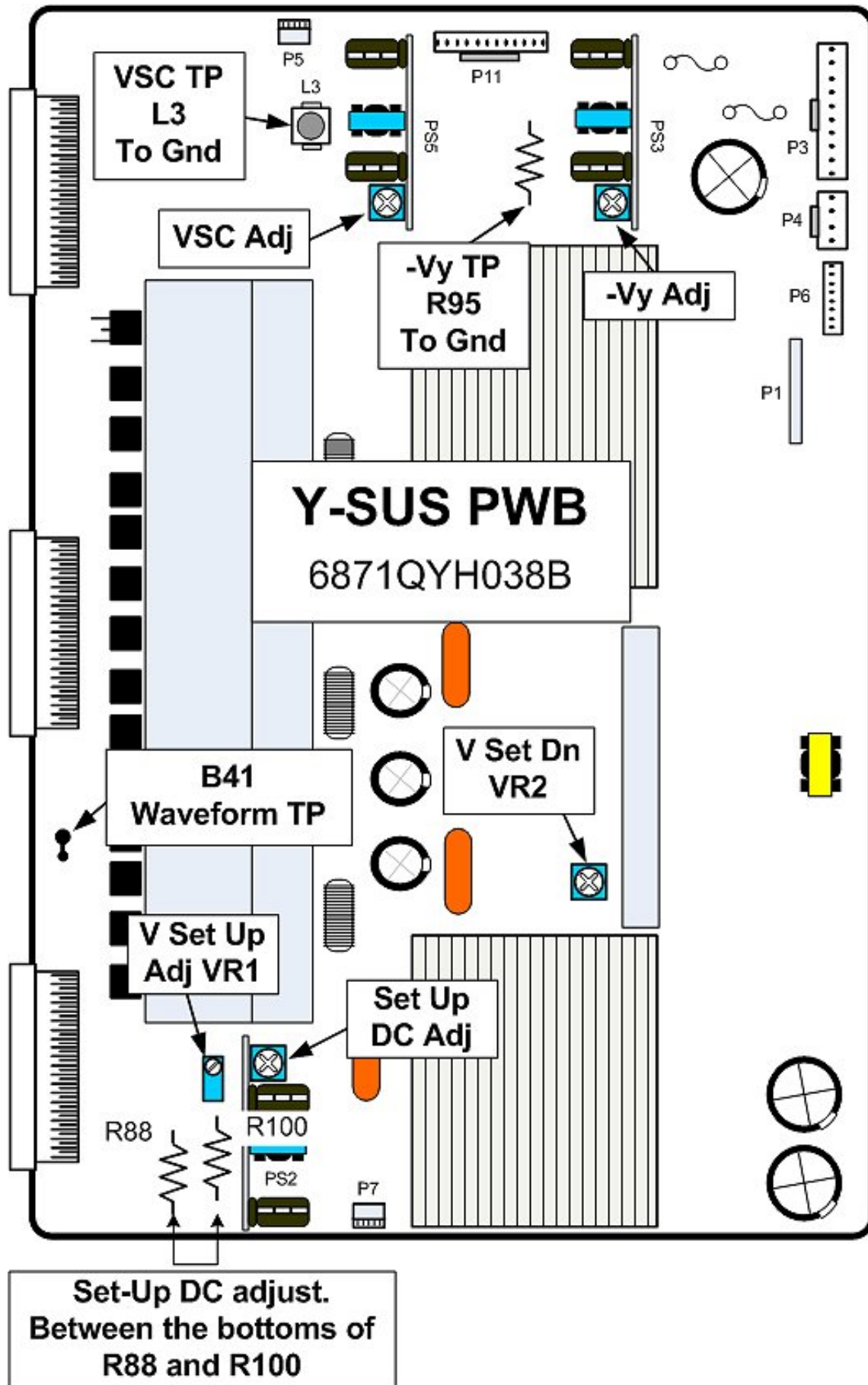
50X2 VSC and –Vy Voltage Adjustment Locations

These voltages are adjustable and should be adjusted to the correct values as indicated by the panel's voltage label. Example shown above. Panel must be in "White Wash"

Model : PDP 50X2###
All Voltage: DC (=) 5.2V
Va : 65V   Vs : 186V
240 / -105 / 115 / N.A. / N.A.
Max Watt : 380 W (Full White)

Set-Up   -Vy   VSC

**-Vy Adj** variable resistor located on **PS3** to of board.

Adjust the **-Vy** while reading from **R95** to Gnd. Match your specific panel's voltage label.

VSC Adj variable resistor located on **PS5** to of board.

Adjust the **VSC** while reading from either side of **L3** to chassis Gnd. Match your specific panel's voltage label.

| -VSC TP L3 | -VSC Adj | -VY TP R95 | -VY Adj |

50X2 V Set-Up DC Voltage ADJUSTMENT

VS, VA, VSC, -Vy should have been completed.

Using a Full White Raster.
Adjust the V Set-up in accordance to
the Voltage listed on t he Panel's
Voltage Label. (Far left hand value).

Model : PDP 50X2###
All Voltage: DC (=) 5.2V
Va : 65V   Vs : 186V
240 / -105 / 115 / N.A. / N.A.
Max Watt : 380 W (Full White)

Set-Up   -Vy   VSC

PROCEDURE:

Test Point:
Read from the bottom of **R88** to the bottom of **R100**.

Adjustment:
Using the variable resistor on the DC-to-DC converter
board **PS2** (Bottom left of the Y-SUS board).

Adjust until the voltage matches your specific Panel's voltage
label.

Location, bottom left of Y-SUS PWB

V Set-up
Adjustment

R88   R100
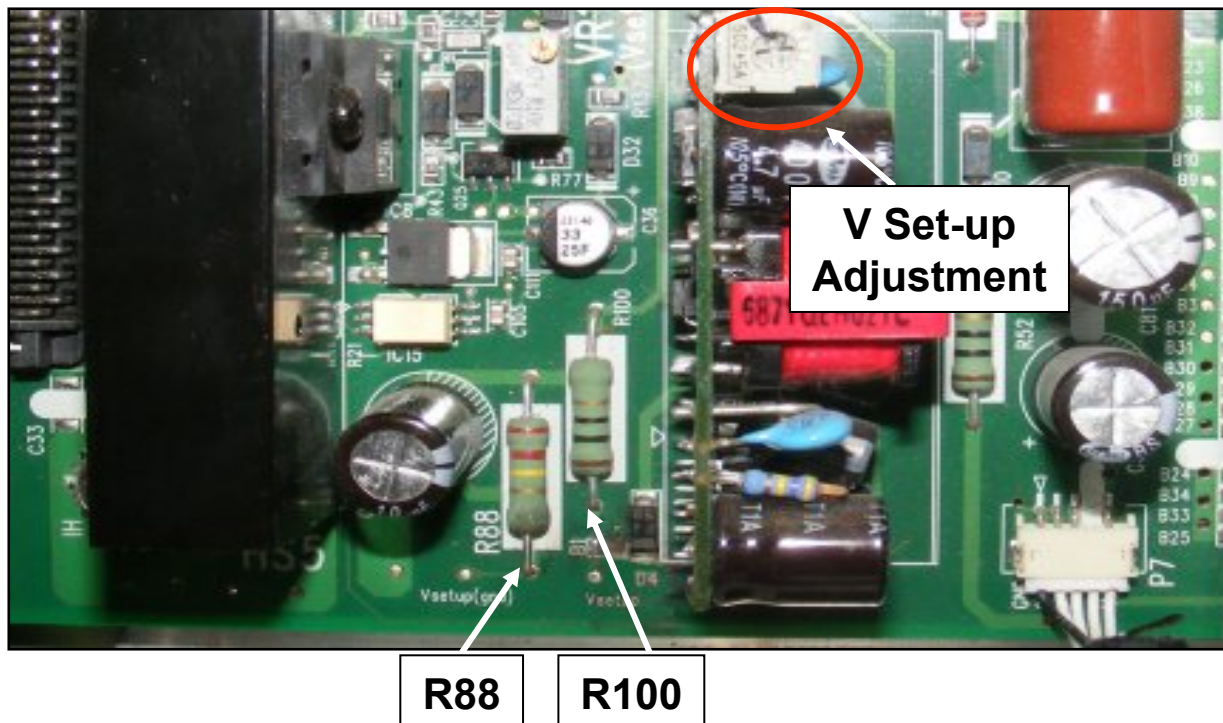
50X2 Y-Drive Waveform Test Point

Figure 1 shows the Y-Drive Board with the area of the Waveform TP outlined in the Red circle.

Use this TP for alignment of the Y-Drive signal using Set-Up and Set-Down adjustments shown on the next page.

Y Drive Waveform TP B41

Y-DRIVE

Y-SUS

50X2 PANEL
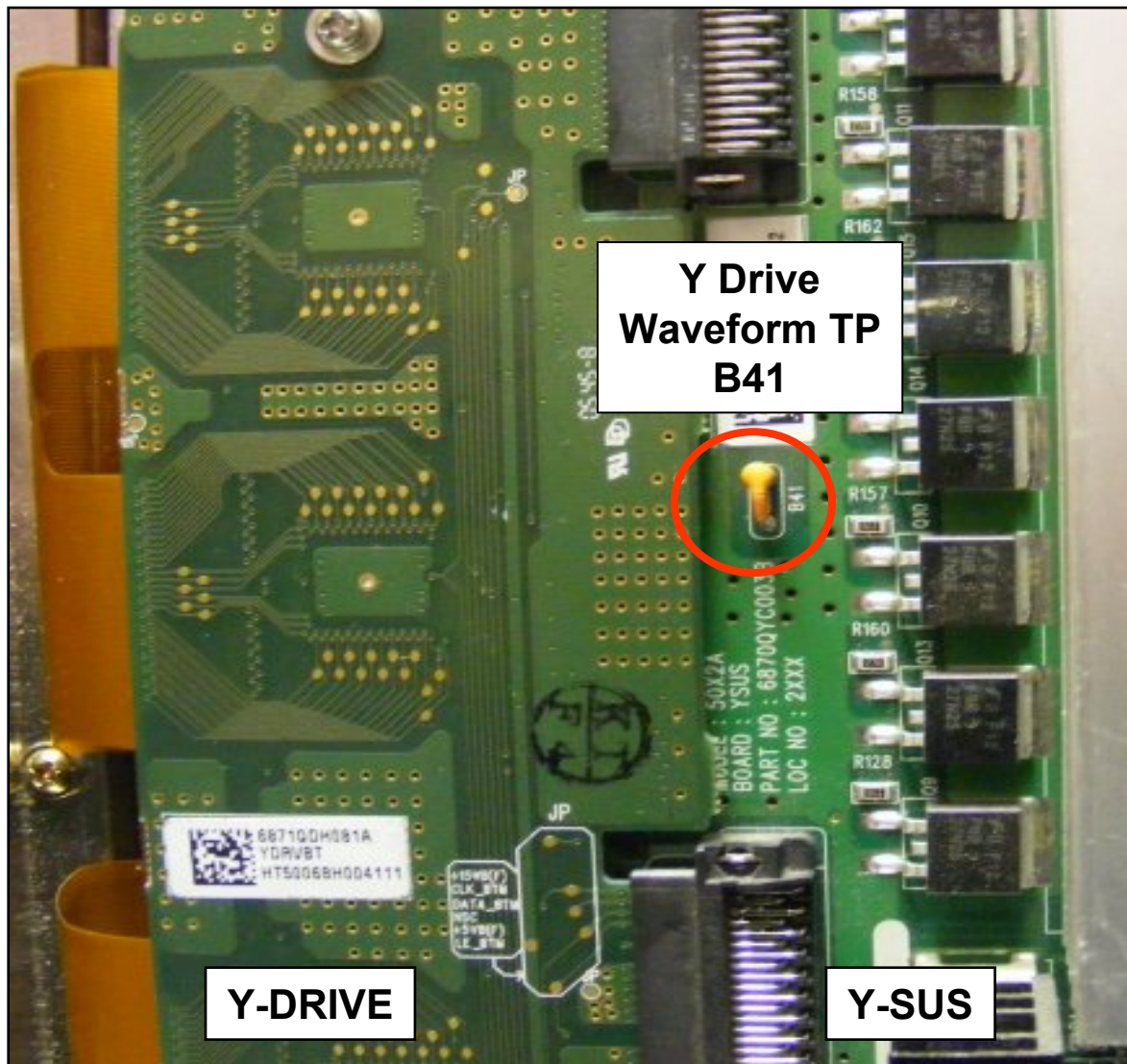
(Fig. 1)

50X2 Y-DRIVE WAVEFORM ADJUSTMENT

All other adjustments should have been completed.

See Y-SUS Test Points and Adjustments diagram for locations.

Using a Full White Raster, adjust the Set-Up (Ramp) and Set-Dn section of the Y-Drive waveform.

Oscilloscope TP "Waveform" TP B41 on the Y-SUS PWB.

(A) Set-Up: Adjust **VR1** while observing area (A) and set to **220V ± 1V**.

(B) Set-Dn: Adjust **VR2** while observing area (B) and set to **170uSec ± 5uSec.**

Using Y-SUS #038B

V Set-up VR1

220V ± 5V

(A)

Connect Scope to B41
Y-SUS Waveform
Output

Y-Drive Waveform

0V

Set-dn VR2

170 ± 5uSec

(B)

| Scope Settings | 50V | 100uS |
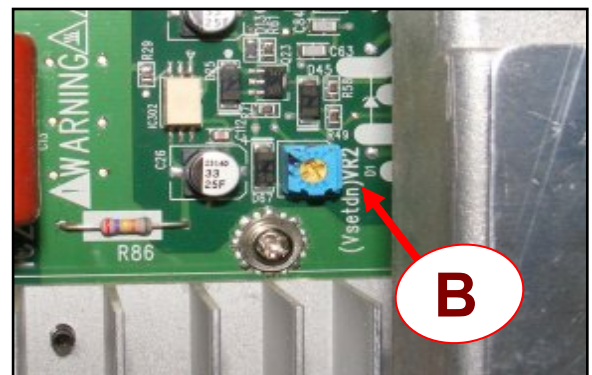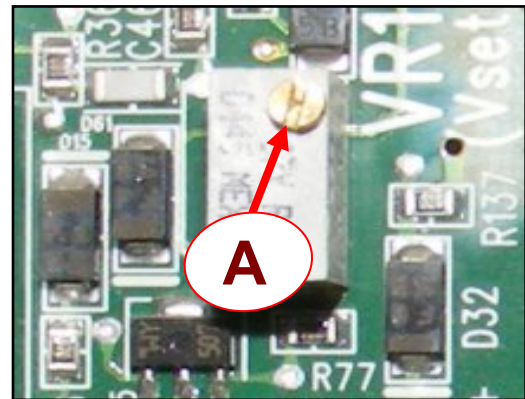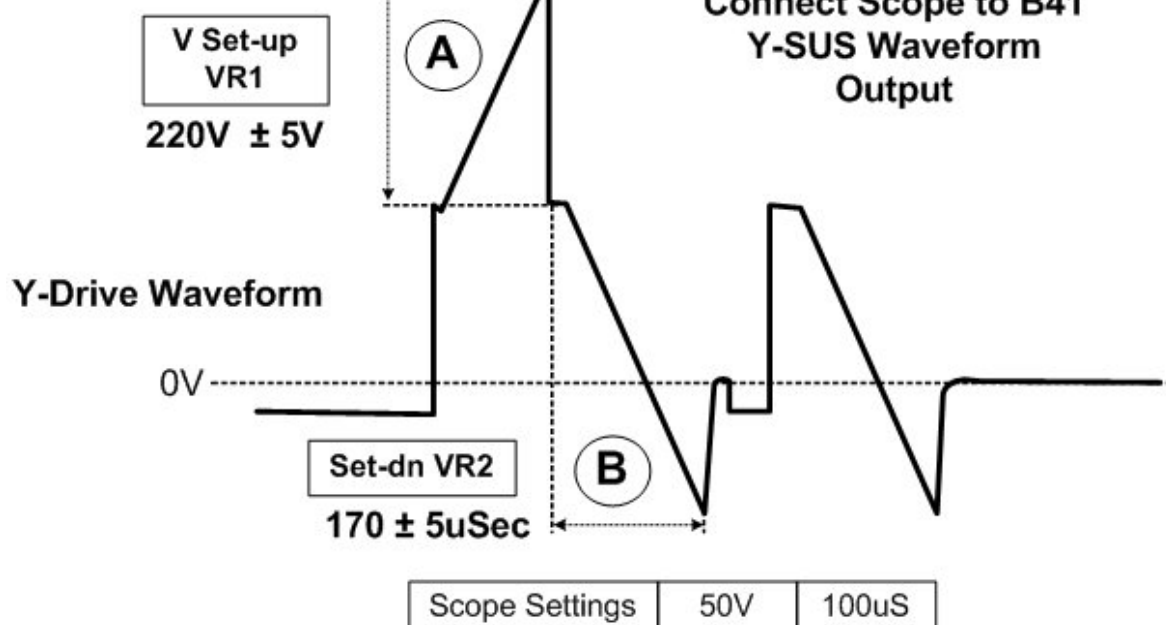
50X2 Z-SUS PWB ADJUSTMENT POINTS

The picture to the right represents a 50X2 Panel Voltage Label. This is for an example only.

Model : PDP 50X2###
All Voltage: DC (=) 5.2V
Va : 65V   Vs : 186V
240 / -105 / 115 / N.A. / N.A.
Max Watt : 380 W (Full White)
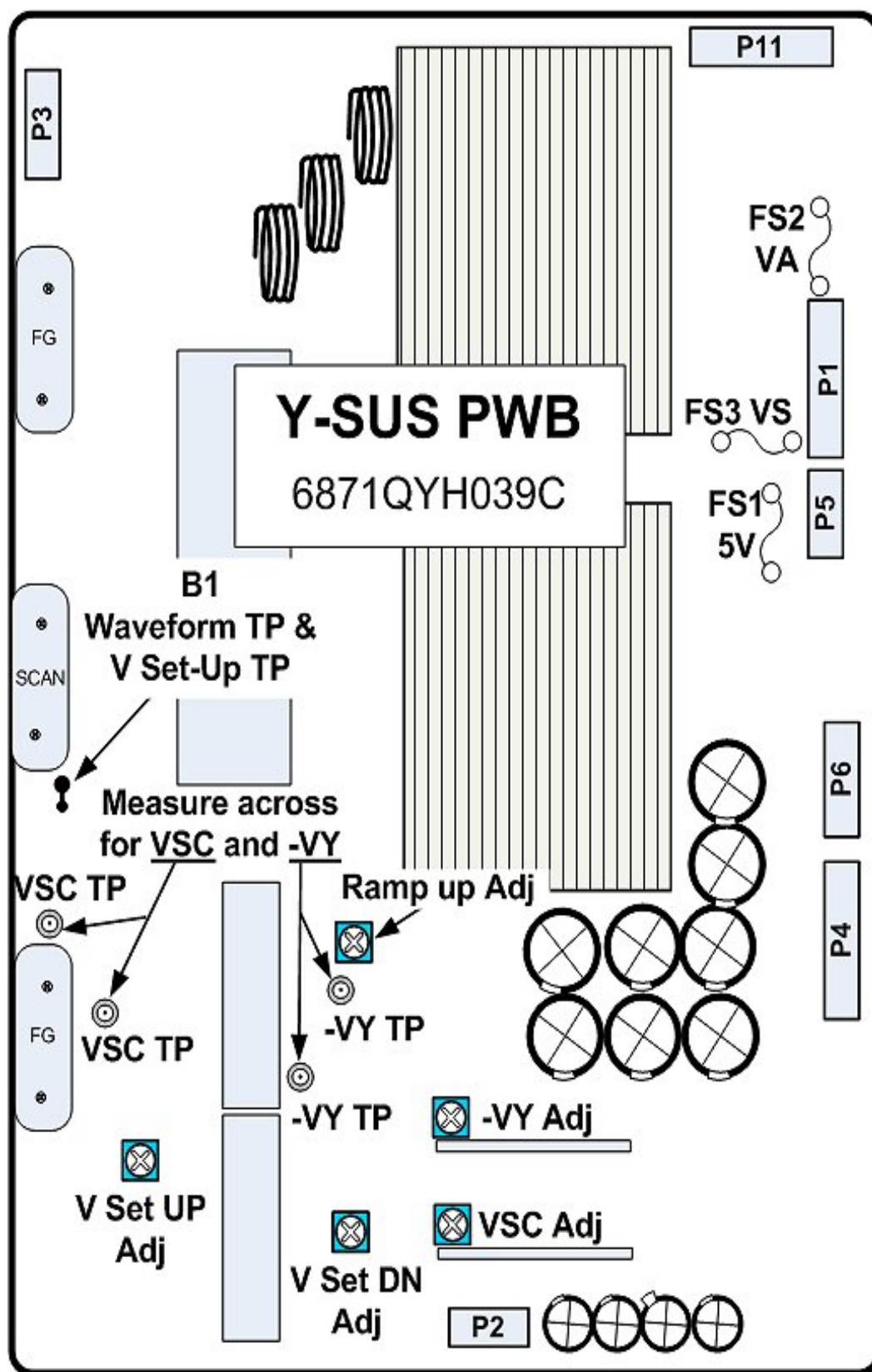
Z Bias (Not Adjustable)

The picture to the right represents the 50X2 Z-SUS PWB.
Notice there are No Adjustment pots or adjustment Test Points.

The Z-SUS TP shown in the bottom right is for the Waveform.

P2

Y-SUS PWB

Z-SUS TP

P9
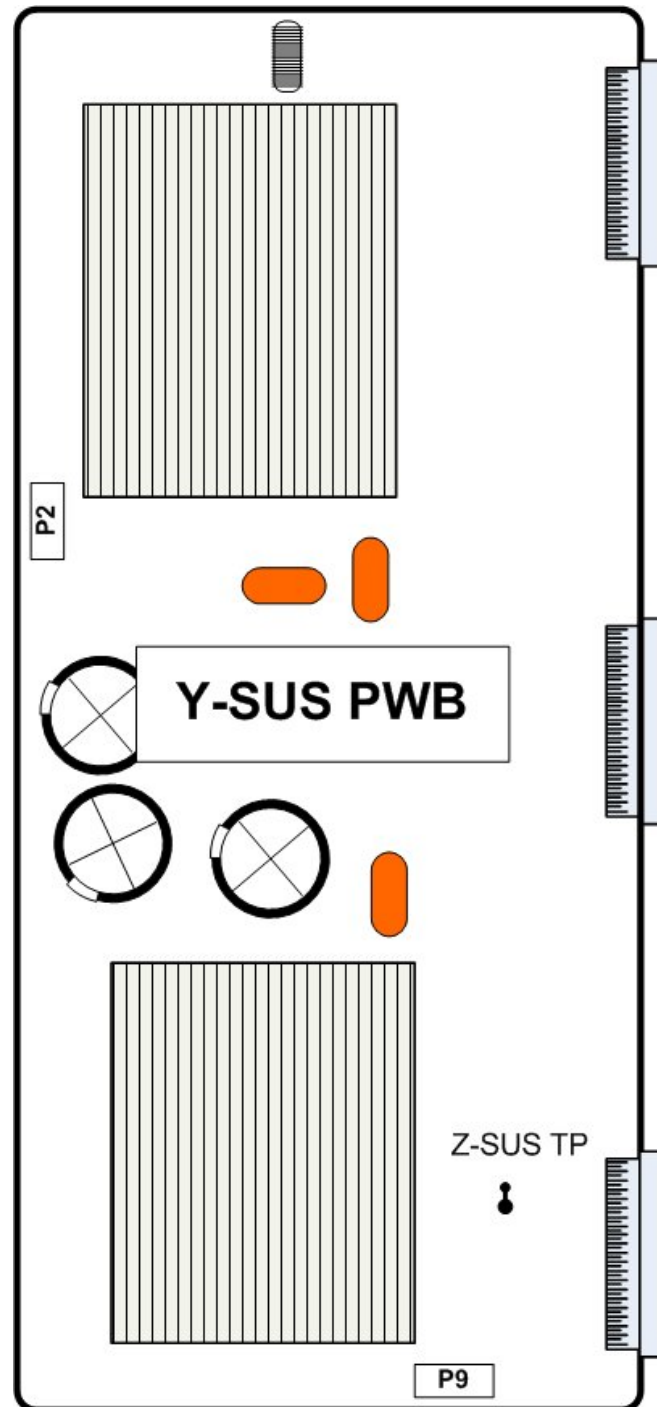
50X2C Y-SUS BOARD ADJUSTMENT POINTS

50X2C VSC, -Vy ADJUSTMENTS

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes
   before making adjustments.
   Vs and Va adjustments complete.
2) Place unit into White Wash from the
   Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as
   indicated on your specific panel's voltage
   label in the upper right of the panel.**

Model : PDP 50X2###
All Voltage: DC (=) 5.2V
Va : 65V   Vs : 186V
240 / -105 / 115 / N.A. / N.A.
Max Watt : 380 W (Full White)

Set-Up   -Vy   VSC

PROCEDURE: (See figure below for locations)

1) Adjust -Vy. Measured across –Vy TPs.
   Match your specific Panel's Voltage label ±1V.

2) Adjust VSC. Measured across VSC TPs.
   Match your specific Panel's Voltage label ±1V.

50X2C PANEL

Lower Left Side Of Board

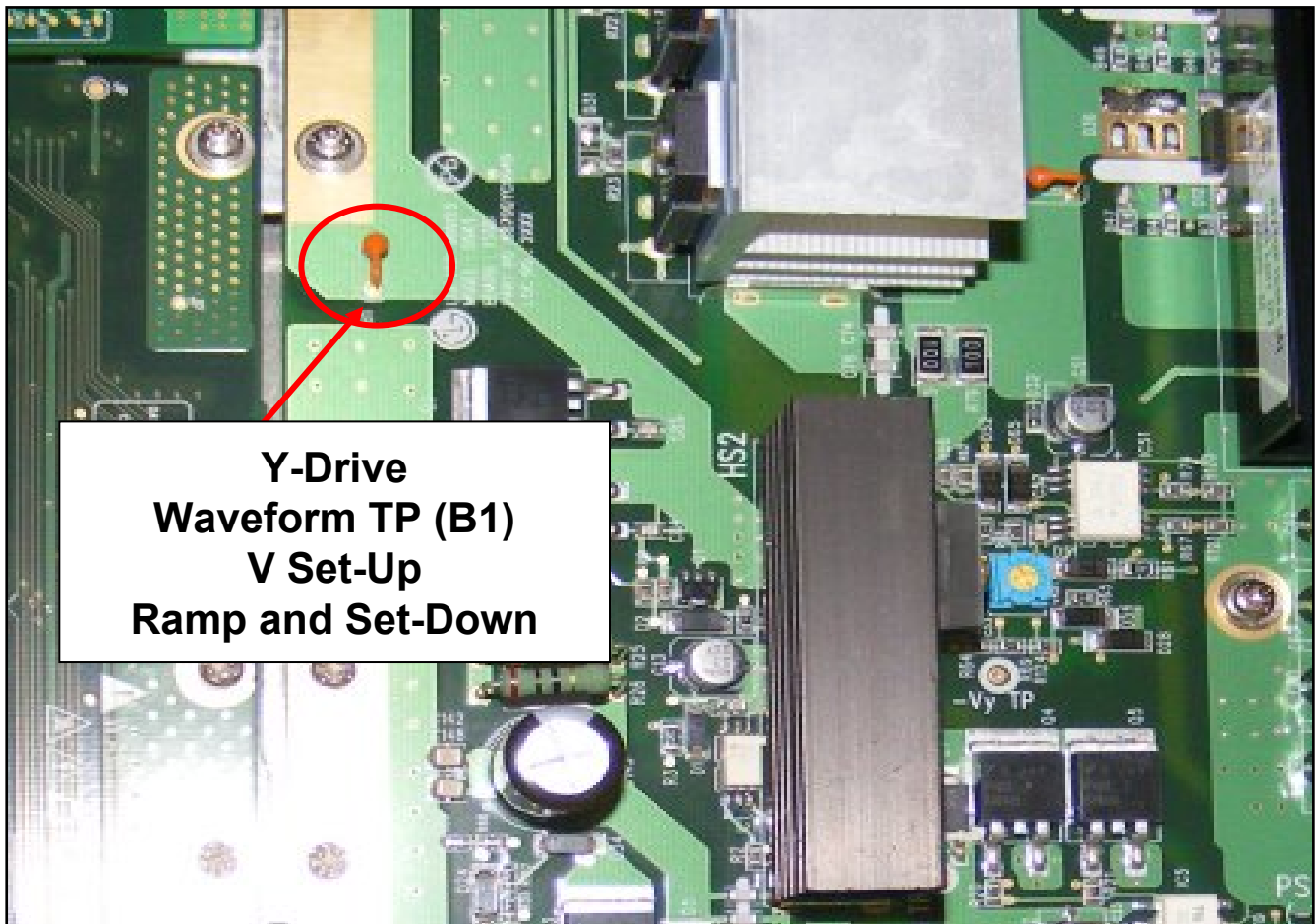# 50X2C Y-Drive Waveform Test Point

Two pages back show the Y-SUS PWB

Figure Below:
Shows a close-up image of the Y-Drive waveform test point on the Y-SUS PWB. TP B1

Ramp (Ramp-Up), Set-Down and V Set-Up portions of the waveform are adjusted using this TP.

TP LOCATION
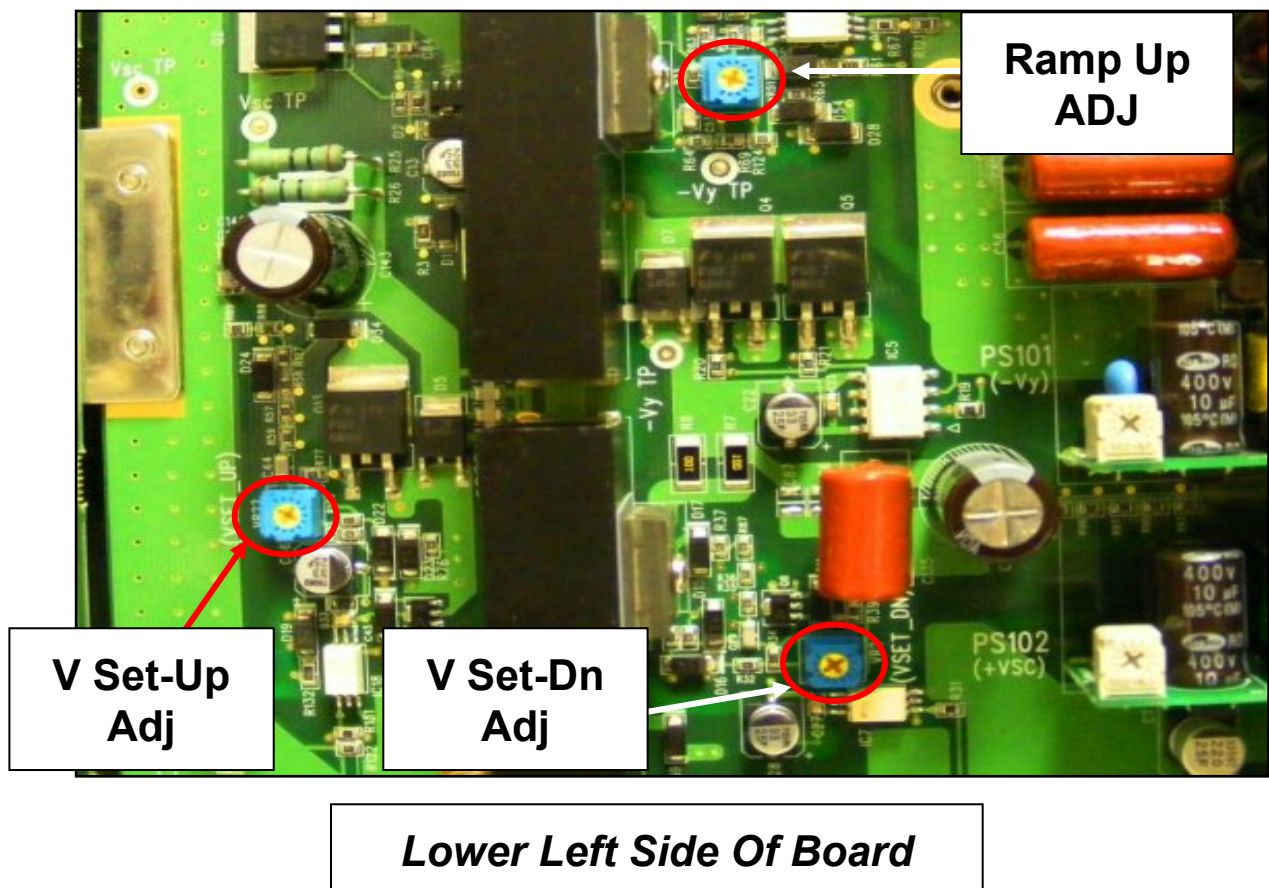**(See next page for adjustment locations)**

**Y-Drive
Waveform TP (B1)
V Set-Up
Ramp and Set-Down**

50X2C PANEL

50X2C Y-DRIVE WAVEFORM ADJUSTMENTS

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes
   before making adjustments.
   Vs, Va, -Vy and VSC adjustments should be completed.
2) Place unit into White Wash from the
   Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as
   indicated on the panel voltage label on the panel.**

PROCEDURE: (See figure below for locations)

See Next page for adjustment specifications.

ADJUSTMENT LOCATIONS
(See preceding page for TP location)

Ramp Up ADJ

V Set-Up Adj

V Set-Dn Adj

Lower Left Side Of Board

50X2C Y-Drive Waveform Adjustment

Using a Full White Raster, adjust the Y-Set-Up, Ramp and Set-Dn section of the Y-Drive waveform.
VS, VA, -Vy and VSC should have been adjusted.

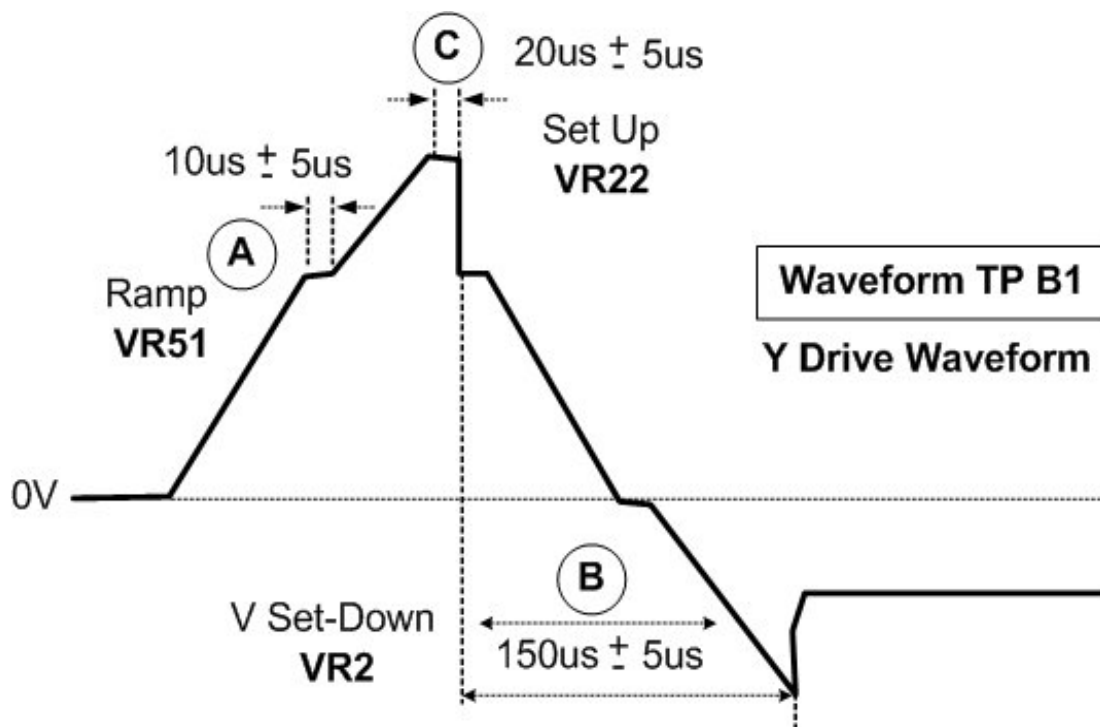**Oscilloscope TP on the "Waveform" TP (B1) on the Y-SUS PWB.**

RAMP ADJUSTMENT:
Adjust **VR51** while observing area (A) and set the flat portion to **10uSec ± 1uSec**.

SET-UP ADJUSTMENT:
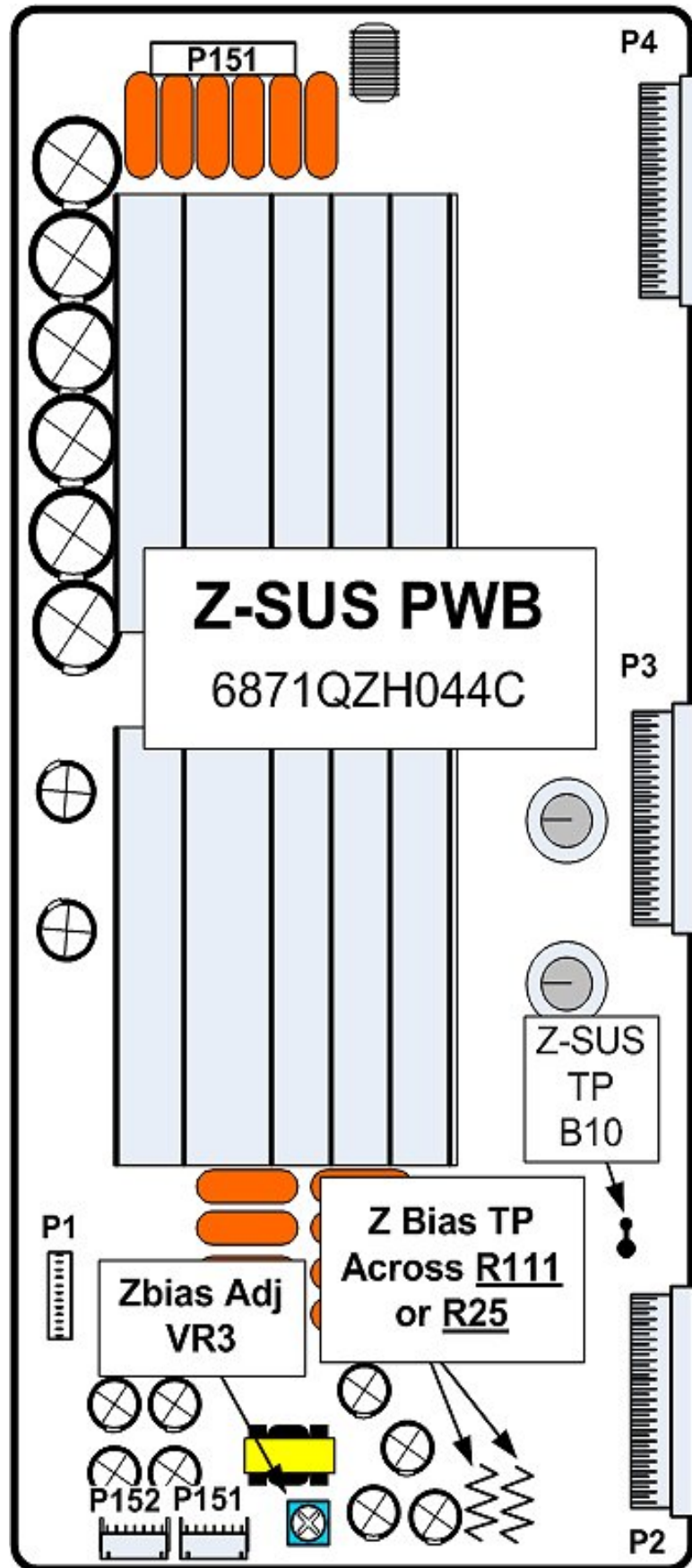Adjust **VR22** while observing area (C) and set to **20uSec ± 1uSec**.

SET-DOWN ADJUSTMENT:
Adjust **VR2** while observing area (B) and set to **150uSec ± 5uSec**.

50X2C Z-SUS BOARD ADJUSTMENT POINTS

50X2C PANEL

P151

P4

Z-SUS PWB

6871QZH044C

P3

Z-SUS TP B10

P1

Z Bias TP Across R111 or R25

Zbias Adj VR3

P152 P151

P2

50X2C Z-SUS (Z-Bias) ADJUSTMENT:

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
2) Place unit into White Wash from the Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as indicated on the panel voltage label in the upper right hand corner of the panel.**

PROCEDURE: (See preceding page for locations)

1) Place DC Volt meter on VZB TP (Across of R111 or R25).
2) Adjust VZB (Z Bias) VR3 in accordance to your specific Panel's voltage label.

Example of Voltage Label

Model : PDP 50X2###
All Voltage: DC (=) 5V
Va : 60V   Vs : 192V
115 / -200 / 115 / N.A. / 95 ───► ZBias
Max Watt : 400 W (Full White)

Z-Bias
ADJ VR3

Z-Bias TP
Across R111
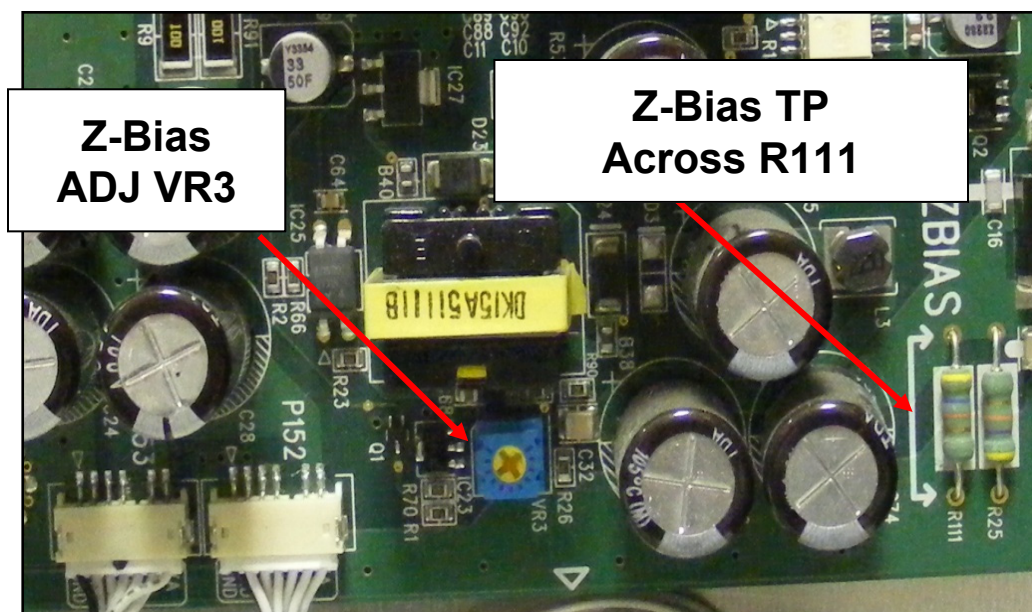
50X3 PANEL

QUICK REFERENCE

ALIGNMENT SECTION

MODELS USING THE 50X3 PANEL

50PB2DR/ 2DR1/ 2DR1NA / 2DRA / 2DRANA
50PB2DRNA / 2DRNA / 2DRW / 2RRHML
50PB2RRHTL / 2RRML / 2RRTL /
50PC1D / 1D1 / 1D1ND / 1DB / 1DB1ND / 1DB1S
50PC1DB1W / 1DBND / 1DCNF / 1DND / 1DR
50PC1DR1 / 1DR1NA / 1DR2 / 1DR2NA / 1DRW
50PC1DRW1 / 1DRWNA / 1DW / 1RTH
50PM1MATA
50PM2DNA
50PX1DHUC
50PX2DUD
50PX4D1 / 4**D1NB** / 4**D1S** / 4**D1W** / **4DEB** / 50PX**4MHTB** /
4RHTB / 4RTB / RZB
50PX5DNA
50PY1DN / 1DNNA
50PY2DR1 / 2DR1NA / 2DR1S / DR1W / DR1W1
50PY2DRG / 2DRGNA / 2DRGW / 2DRNA / 2DRNA
DN50PX12
DN50PX40M

LG
Life's Good

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50X3 SMPS BOARD ADJUSTMENT POINTS

Set should be in "Full White Raster"

These two voltages are adjustable and should be adjusted to the correct values as indicated by the panel label.

Example shown on the right.

Always adjust "Highest to Lowest" voltages.
VS and VA adjustment resistors are shown in the drawing below.
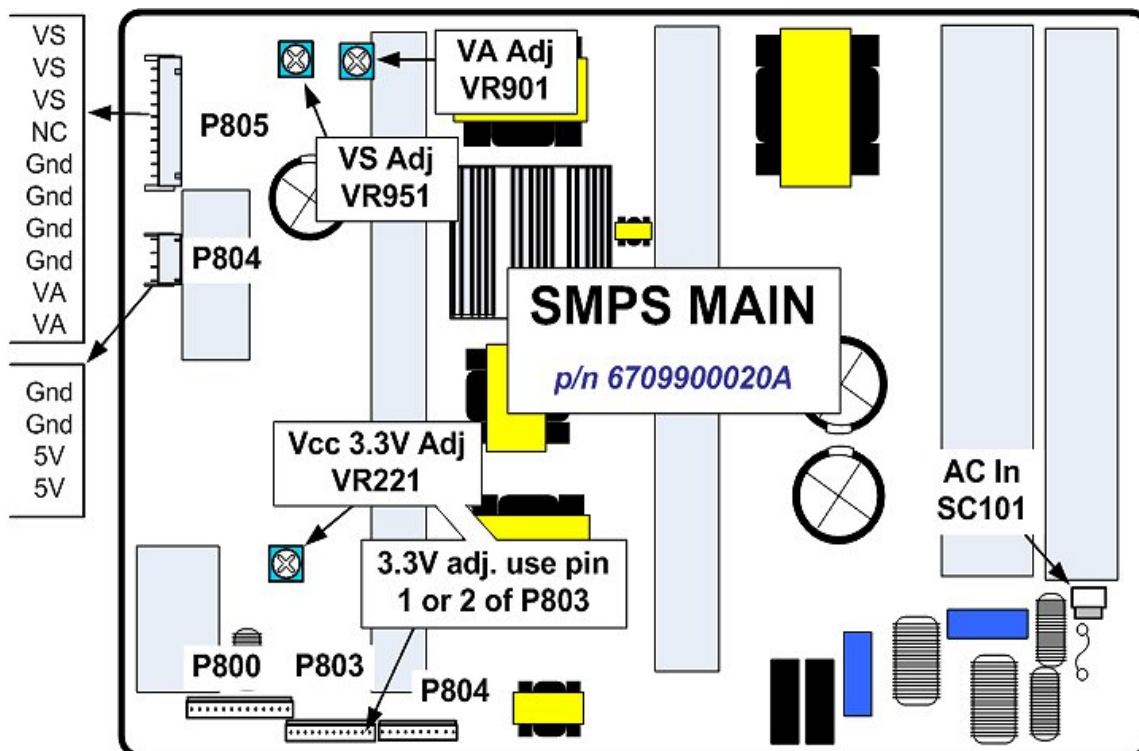They are located at the top left of the board.
VR951 is the VS adjustment pot.
VR901 is the VA adjustment pot.
5V adjustment is sealed and factory pre-aligned.

Model : PDP 50X3###
All Voltage: DC (=) 5V
Va : 60V   Vs : 192V
115 / -200 / 115 / N.A. / 95
Max Watt : 400 W (Full White)

1) **VS ADJUST:** Connect DVM to pin 8, 9 or 10 of P812. Adjust VR951 until the voltage matches the panel's voltage label.

2) **VA ADJUST:** Connect DVM to pin 1 or 2 of P812. Adjust VR901 until the voltage matches the panel's voltage label.
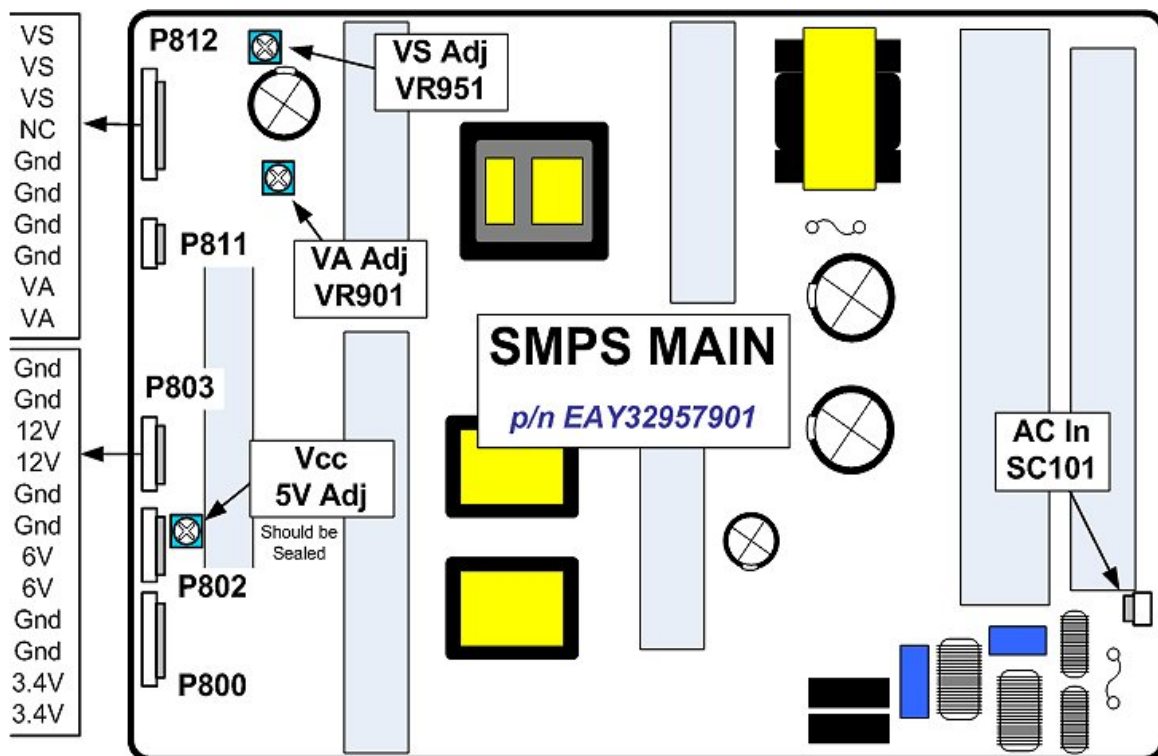
50X3 SMPS BOARD ADJUSTMENT POINTS

Set should be in "Full White Raster"

These two voltages are adjustable and should be adjusted to the correct values as indicated by the panel's label. Example shown on the right.

```
Model : PDP 50X3###
All Voltage: DC (=) 5V
Va : 60V    Vs : 192V
115 / -200 / 115 / N.A. / 95
Max Watt : 400 W (Full White)
```

Always adjust "Highest to Lowest" voltages.
VS and VA adjustment resistors are shown in the drawing below.
They are located at the top left of the board.
VR951 is the VS adjustment pot.
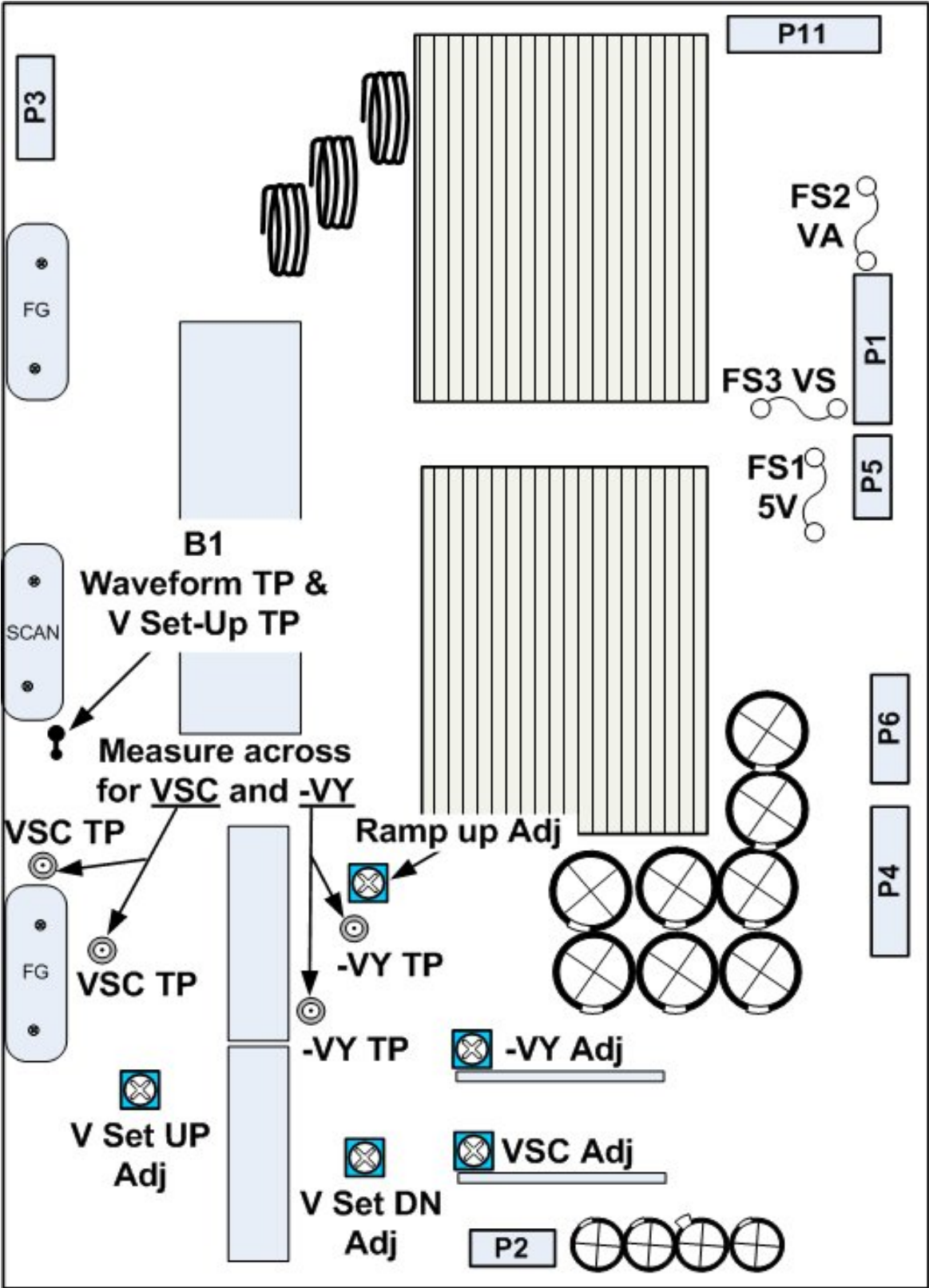**VR901** is the VA adjustment pot.
VR221 is the 3.3V adjustment pot.
5V adjustment is sealed and factory pre-aligned.

1) **VS ADJUST:** Connect DVM to pin 8, 9 or 10 of P812. Adjust VR951 until the voltage matches the panel's voltage label.
2) **VA ADJUST:** Connect DVM to pin 1 or 2 of P812. Adjust VR901 until the voltage matches the panel's voltage label.
3) **3.3V ADJUST:** Connect DVM to pin 1 or 2 of P803. Adjust VR221 until the voltage reads 3.3V

50X3 PANEL

50X3P Y-SUS PWB ADJUSTMENT POINTS

50X3 PANEL

P3

P11

FG

FS2 VA

FS3 VS

P1

FS1 5V

P5

B1
Waveform TP &
V Set-Up TP

SCAN

P6

Measure across
for VSC and -VY

P4

VSC TP

Ramp up Adj

FG

VSC TP

-VY TP

-VY TP

-VY Adj

V Set UP
Adj

VSC Adj

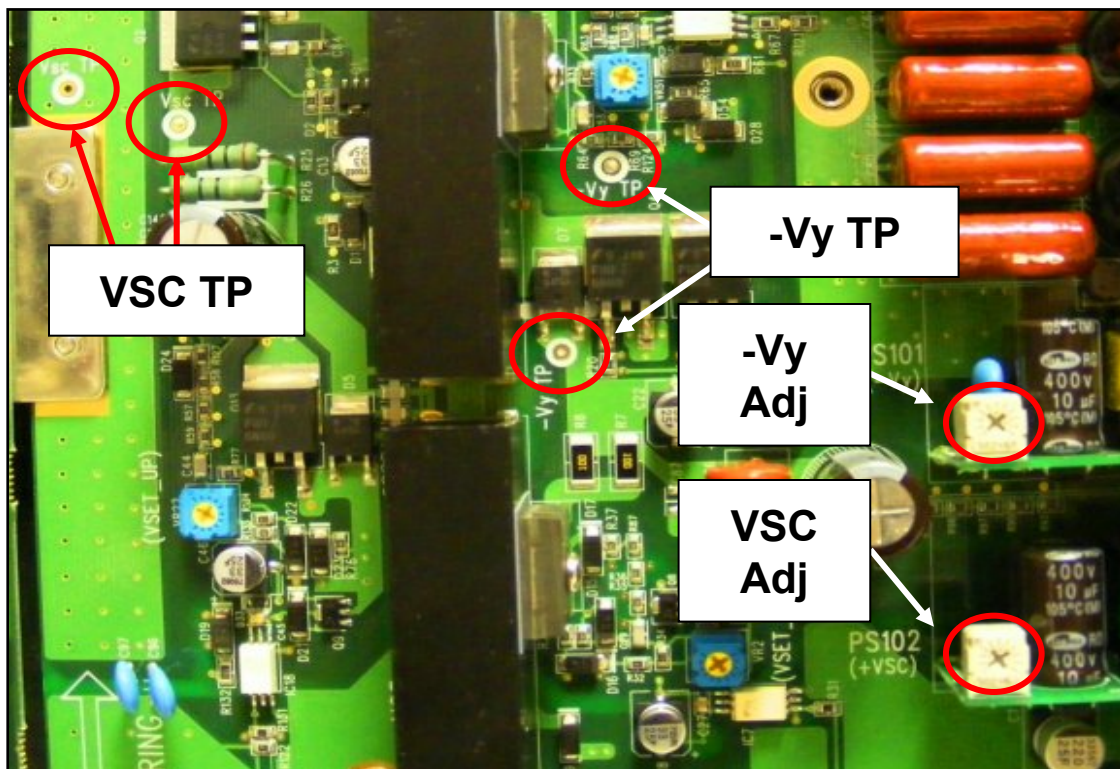V Set DN
Adj

P2

50X3 VSC, -Vy ADJUSTMENTS

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
   Vs and Va adjustments complete.
2) Place unit into White Wash from the Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as indicated on your specific panel's voltage label in the upper right of the panel.**

Model : PDP 50X3###
All Voltage: DC (=) 5V
Va : 60V   Vs : 192V
115 / -200 / 115 / N.A. / 95
Max Watt : 400 W (Full White)

–Vy VSC

PROCEDURE: (See figure below for locations)

1) **Adjust -Vy**. Measured across –Vy TPs.
   Match your specific Panel's Voltage label ±1V.

2) **Adjust VSC**. Measured across VSC TPs.
   Match your specific Panel's Voltage label ±1V.

VSC TP

-Vy TP

-Vy Adj

VSC Adj

Lower Left Side Of Board

50X3 PANEL

50X3 Y Drive Waveform Test Point
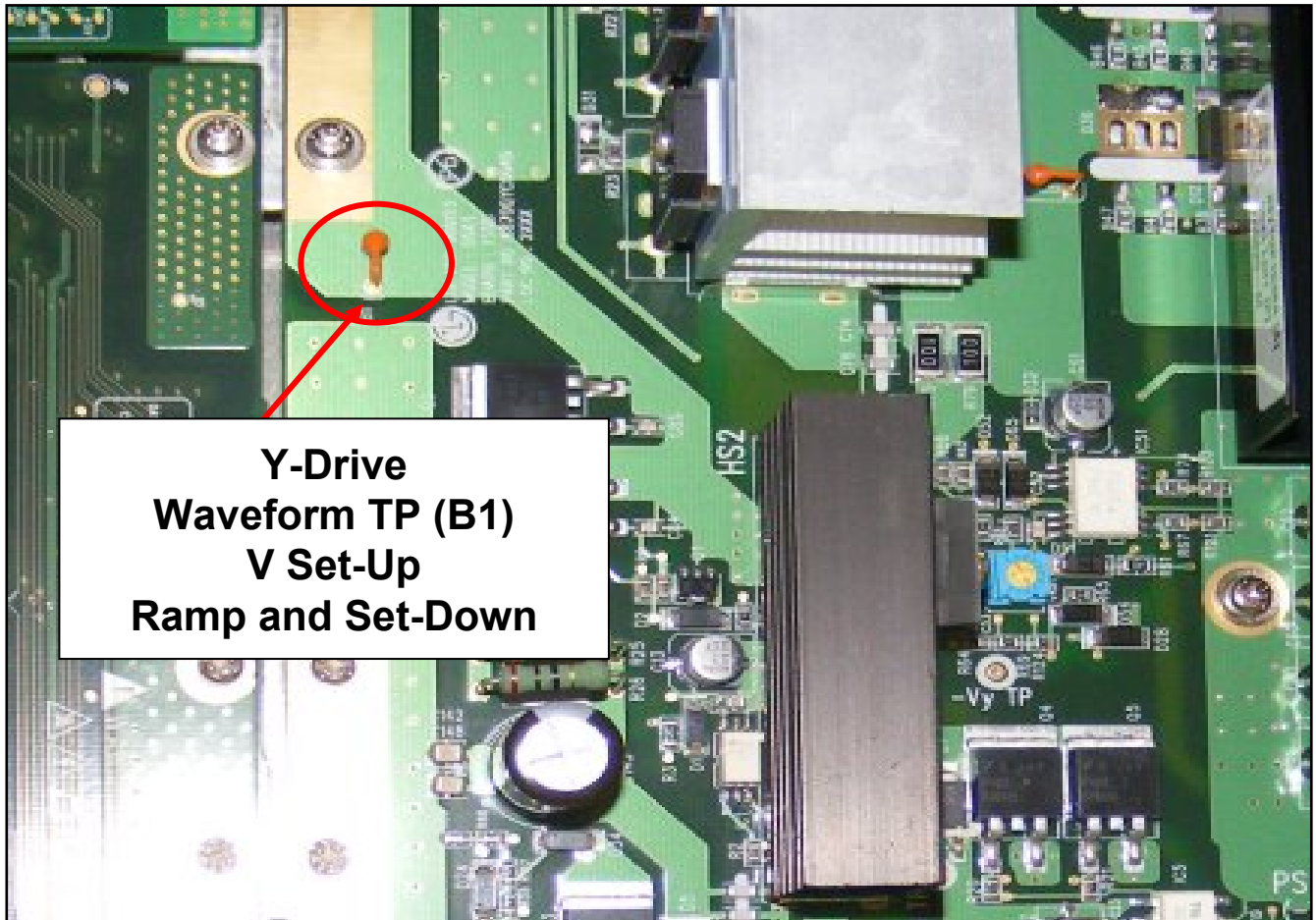
Two pages back show the Y-SUS PWB

Figure Below:
Shows a close-up image of the Y-Drive waveform test point on the Y-SUS PWB. TP B1

Ramp (Ramp-Up), Set-Down and V Set-Up portions of the waveform are adjusted using this TP.

TP LOCATION
(See next page for adjustment locations)

Y-Drive
Waveform TP (B1)
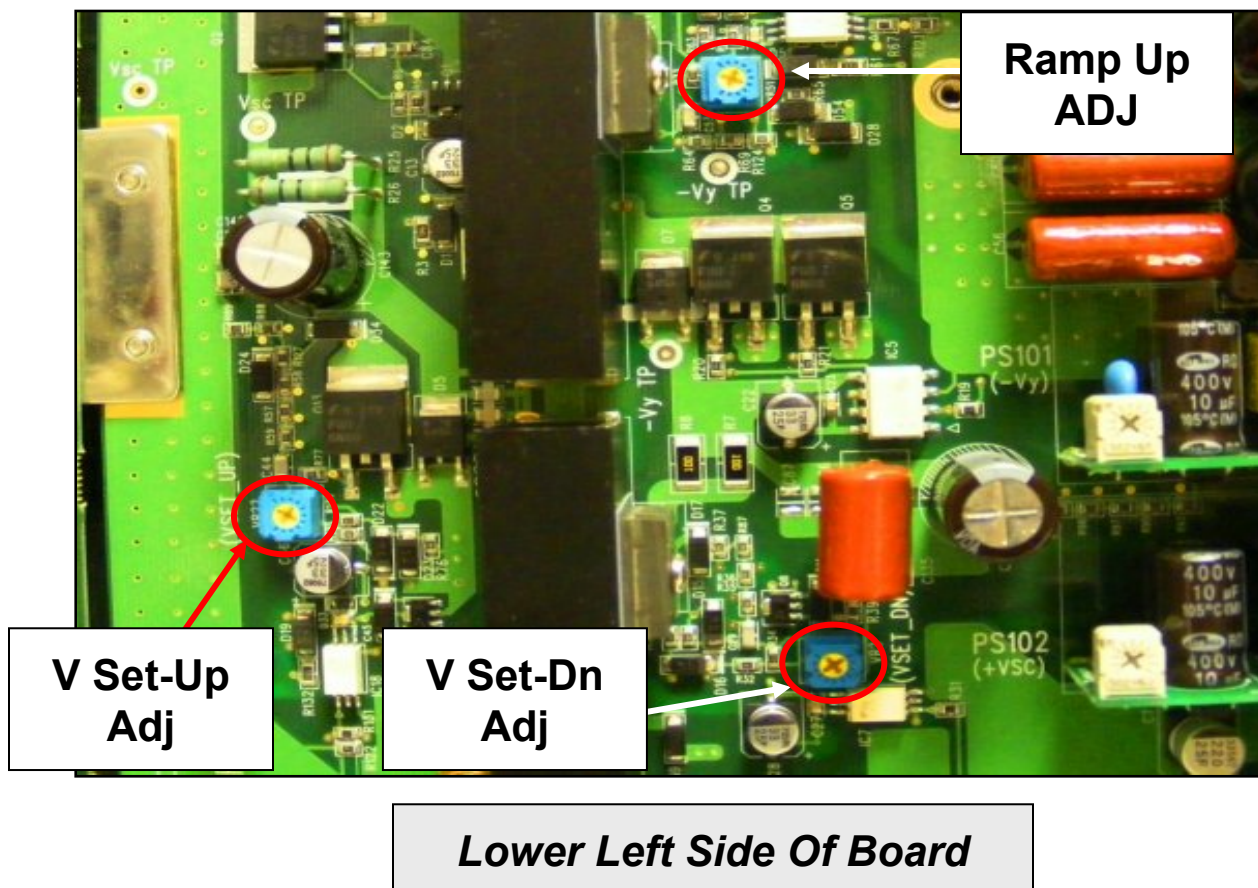V Set-Up
Ramp and Set-Down

50X3 Y-DRIVE WAVEFORM ADJUSTMENTS

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes
   before making adjustments.
   Vs, Va, -Vy and VSC adjustments should be completed.
2) Place unit into White Wash from the
   Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as
   indicated on the panel voltage label on the panel.**

PROCEDURE: (See figure below for locations)

See Next page for adjustment specifications.

ADJUSTMENT LOCATIONS
(See preceding page for TP location)

Ramp Up ADJ

V Set-Up Adj

V Set-Dn Adj

Lower Left Side Of Board

50X3 PANEL

50X3 Y-Drive Waveform Adjustment

Using a Full White Raster, adjust the Y-Set-up, Ramp and Set-dn section of the Y-Drive waveform.
VS, VA, -Vy and VSC should have been adjusted.

Oscilloscope TP on the "Waveform" TP (B1) on the Y-SUS Board.
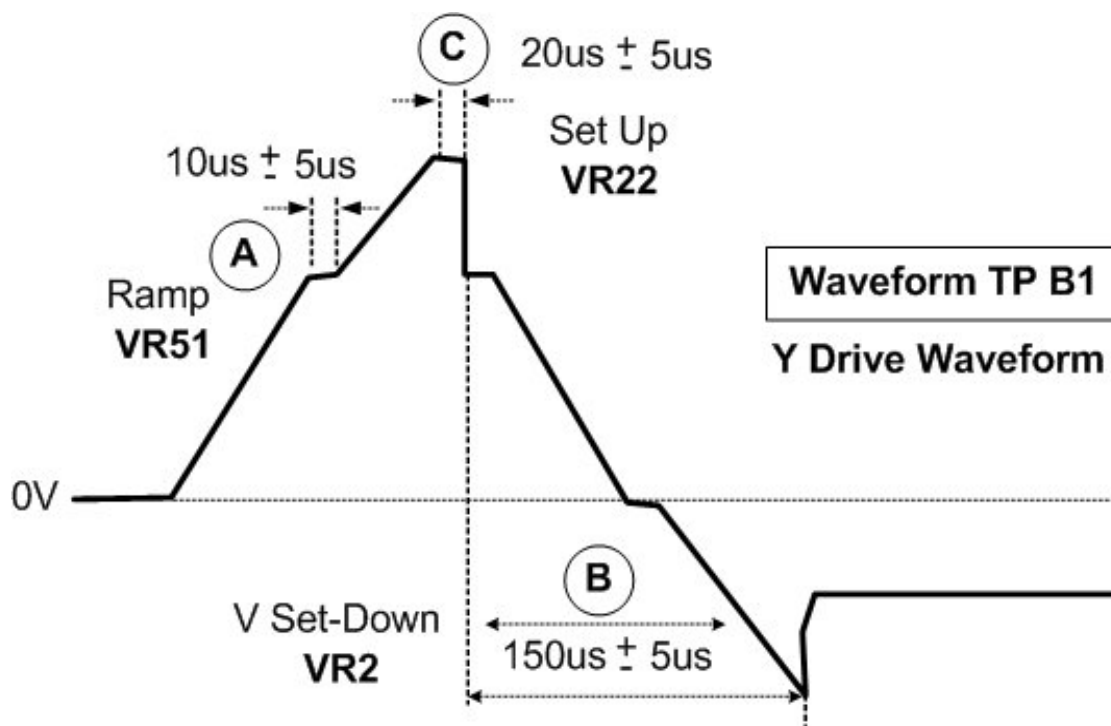
RAMP ADJUSTMENT:
Adjust VR51 while observing area (A) and set the flat portion to 10uSec ± 1uSec.
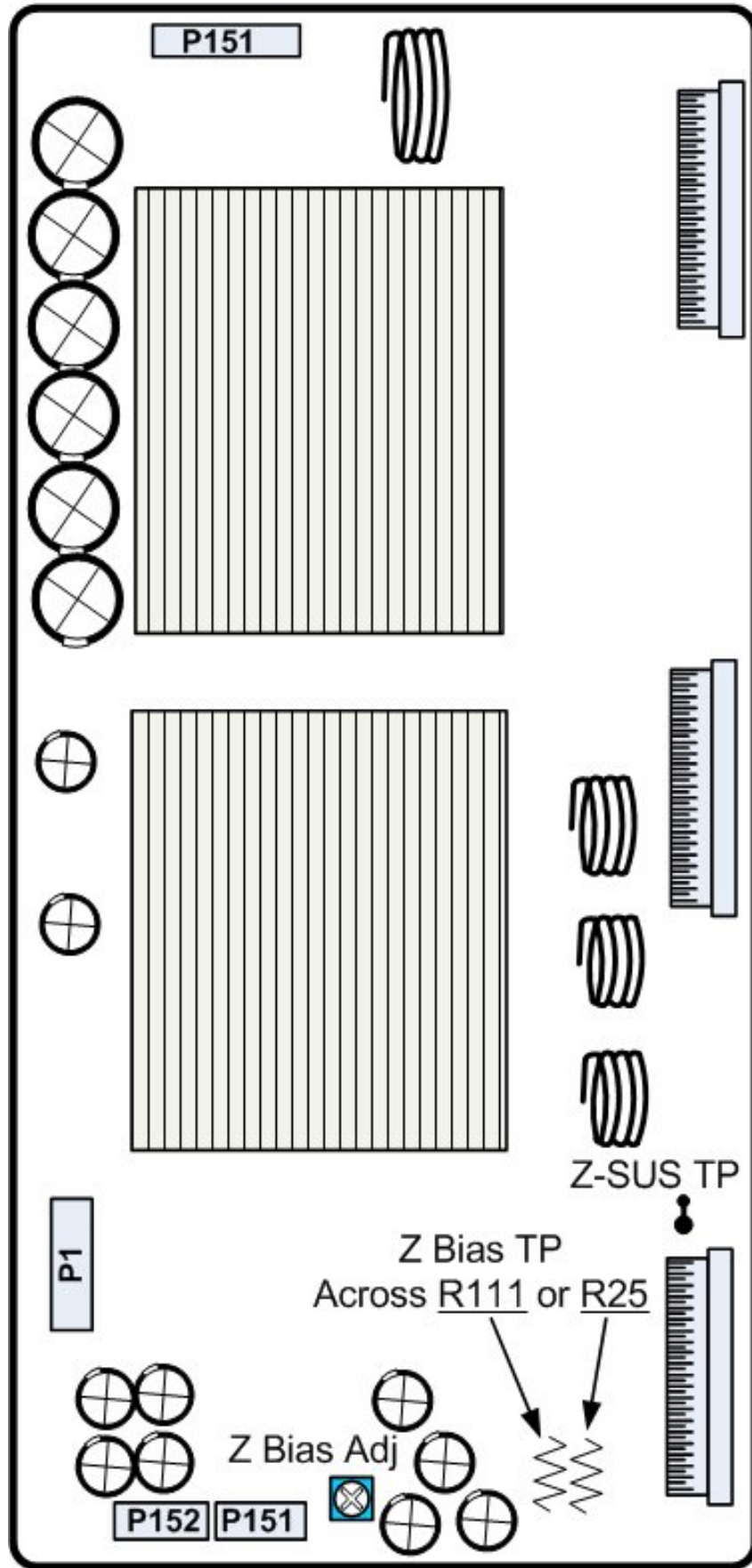
SET-UP ADJUSTMENT:
Adjust VR22 while observing area (C) and set to 20uSec ± 1uSec.

SET-DOWN ADJUSTMENT:
Adjust VR2 while observing area (B) and set to 150uSec ± 5uSec.

50X3P Z-SUS BOARD ADJUSTMENT POINTS

P151

P1

Z-SUS TP

Z Bias TP
Across R111 or R25

Z Bias Adj

P152 P151

**50X3 PANEL**

50X3P Z-SUS (Z-Bias) ADJUSTMENT:

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
2) Place unit into White Wash from the Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as indicated on the panel voltage label in the upper right hand corner of the panel.**

PROCEDURE: (See preceding page for locations)

1. **Place DC Volt meter on VZB TP (Across of R111).**
2. **Adjust VZB (Z Bias) VR3 in accordance with the Panel's voltage label.**

Model : PDP 50X3###
All Voltage: DC (=) 5V
Va : 60V   Vs : 192V
115 / -200 / 115 / N.A. / 95 → Z-Bias
Max Watt : 400 W (Full White)
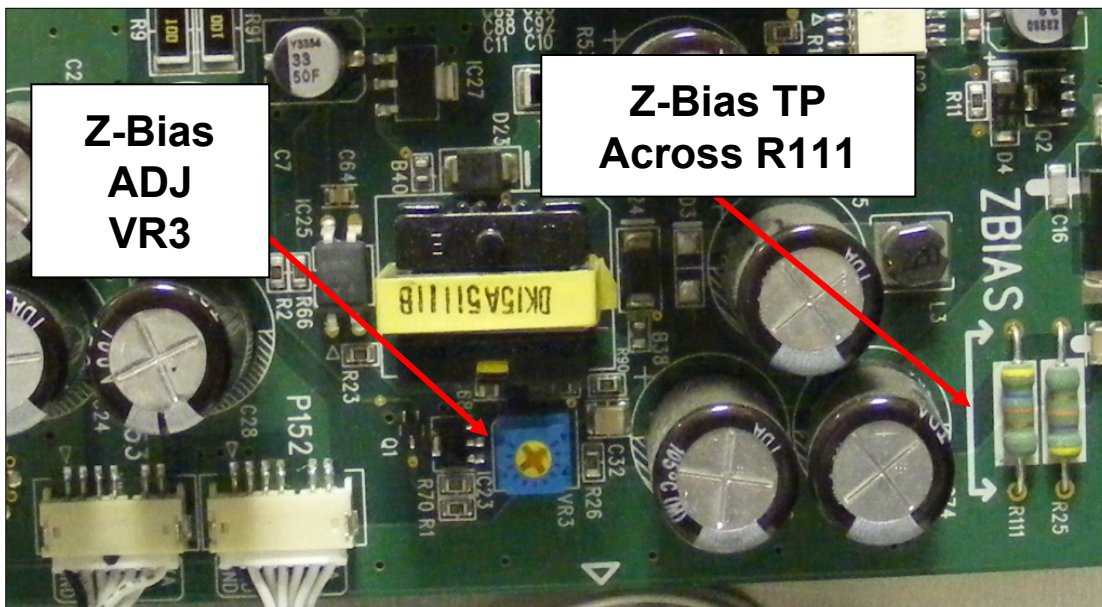
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50X4 PANEL

QUICK REFERENCE

ALIGNMENT SECTION

MODELS USING THE 50X4 PANEL

50PB2DR / 50PB3DP / DP1 / DR / DRW
50PB4DA / DR / DRP / DT / RT / RTH
50PC1D / D1 / D2 / DB1 / DB2 / R / RR
50PC5D / DP / R
50PC35 / DA / DAP / 51 / 55
50PT81 50X4P / 50PX4M

LG

Life's Good

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50X4 SMPS PWBs ADJUSTMENT POINTS
Part Number: EAY32957901

These two voltages are adjustable and should be adjusted to the correct values as indicated by the panel label.
Example shown in the outlined area below.
Always adjust "Highest to Lowest" voltages.
VS and VA adjustment resistors are shown in the drawing below.
They are located at the top left of the board.
VR951 is the VS adjustment pot.
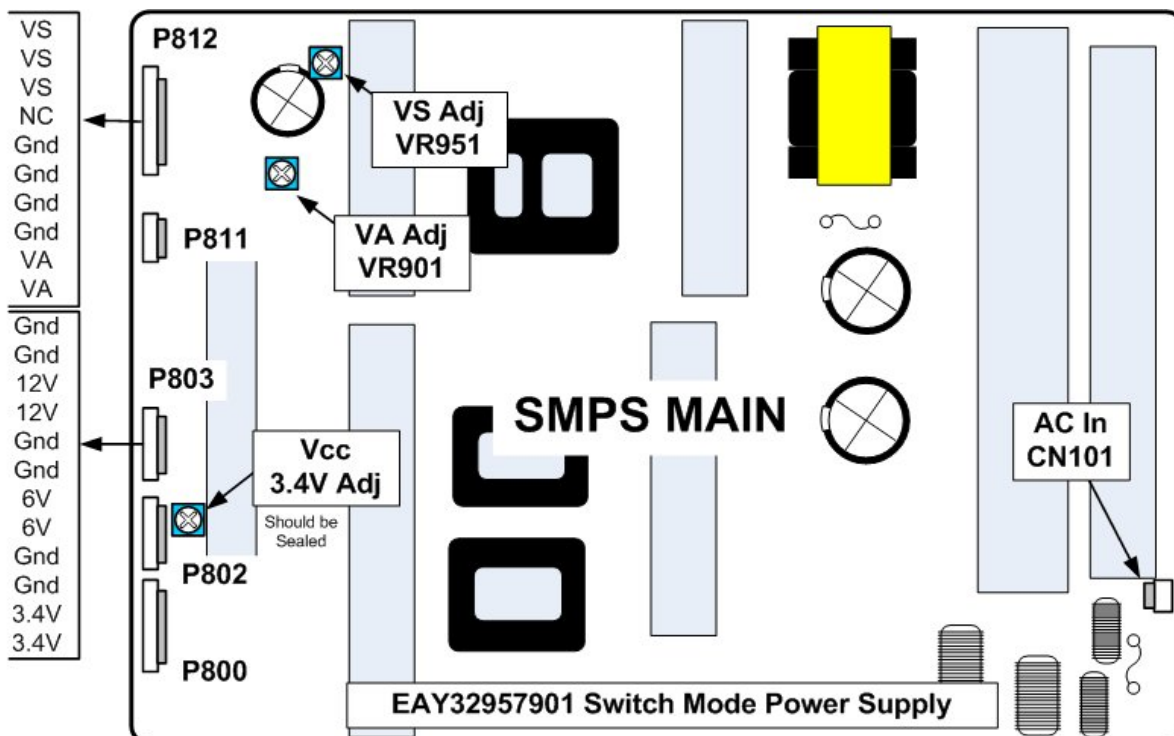**VR901** is the VA adjustment pot.

Set should be in "Full White Raster"

Model : PDP 50X4 ####
All Voltage : DC 5V
Va : 58V   Vs : 193V
100 / NA / 125 / NA / 100
Max Watt : 400 W (Full White)

VA   VS

1) **Vcc ADJUST:** Connect DVM to 3.4V pin of P803. Adjust **Vcc 3.4V Adj** until the voltage matches the panel's voltage label. (If sealed, just check voltage)

2) **VS ADJUST:** Connect DVM to pin 8, 9 or 10 of P812. Adjust **VR951** until the voltage matches the panel's voltage label.

3) **VA ADJUST:** Connect DVM to pin 1 or 2 of P812. Adjust **VR901** until the voltage matches the panel's voltage label.

50X4 PANEL

VS
VS
VS
NC
Gnd
Gnd
Gnd
Gnd
VA
VA

Gnd
Gnd
12V
12V
Gnd
Gnd
6V
6V
Gnd
Gnd
3.4V
3.4V

P812

P811

VS Adj
VR951

VA Adj
VR901

P803

Vcc
3.4V Adj

Should be
Sealed

P802

P800

SMPS MAIN

AC In
CN101

EAY32957901 Switch Mode Power Supply

50X4P SMPS BOARD ADJUSTMENT POINTS
Part Number: 6709V00001A

These two voltages are adjustable and should be adjusted to the correct values as indicated by the panel label.
Example shown in the outlined area below.
Always adjust "Highest to Lowest" voltages.
VS and VA adjustment resistors are shown in the drawing below.
They are located at the top left of the board.
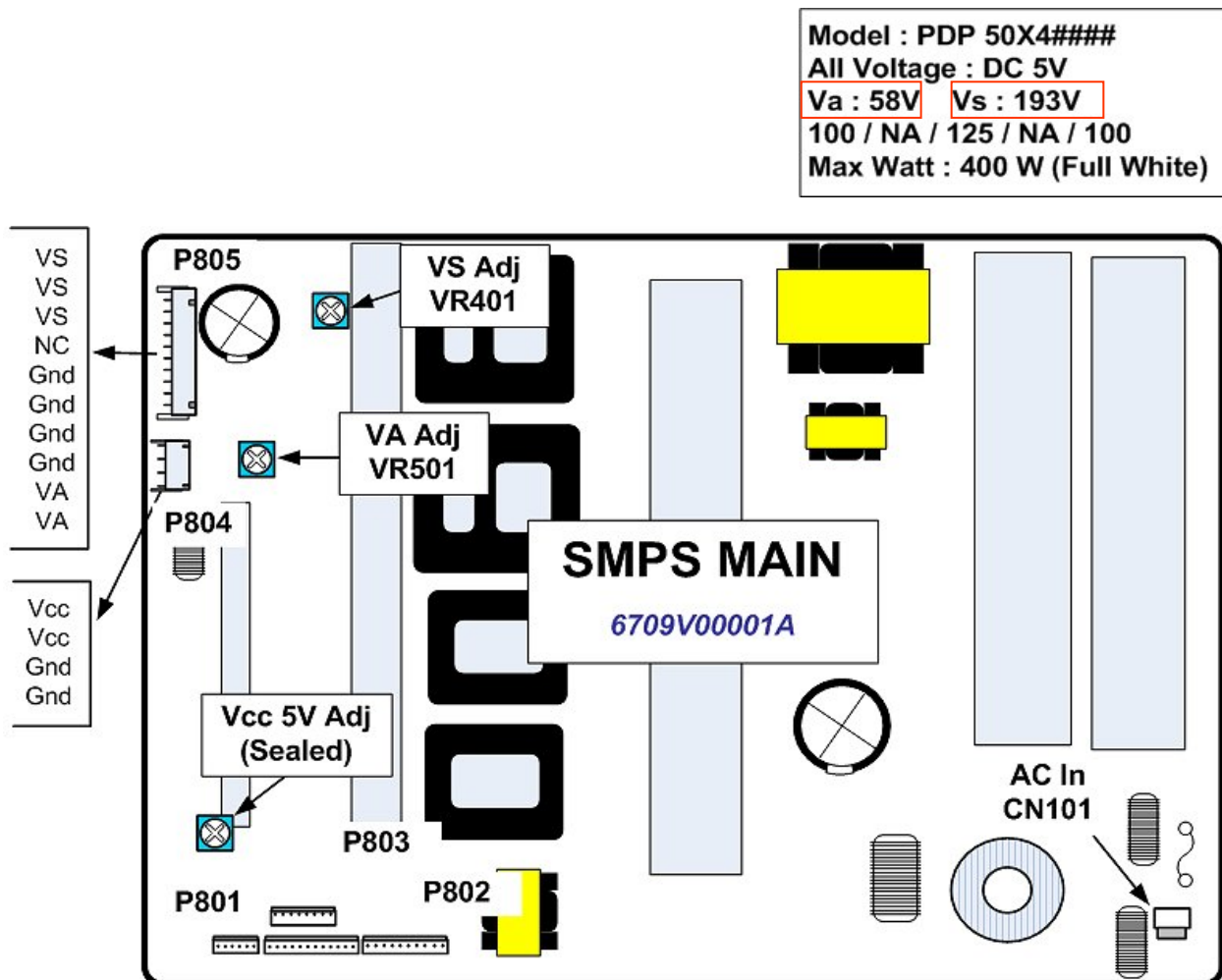VR401 is the VS adjustment pot.
VR501 is the VA adjustment pot.

 Set should be in "Full White Raster"

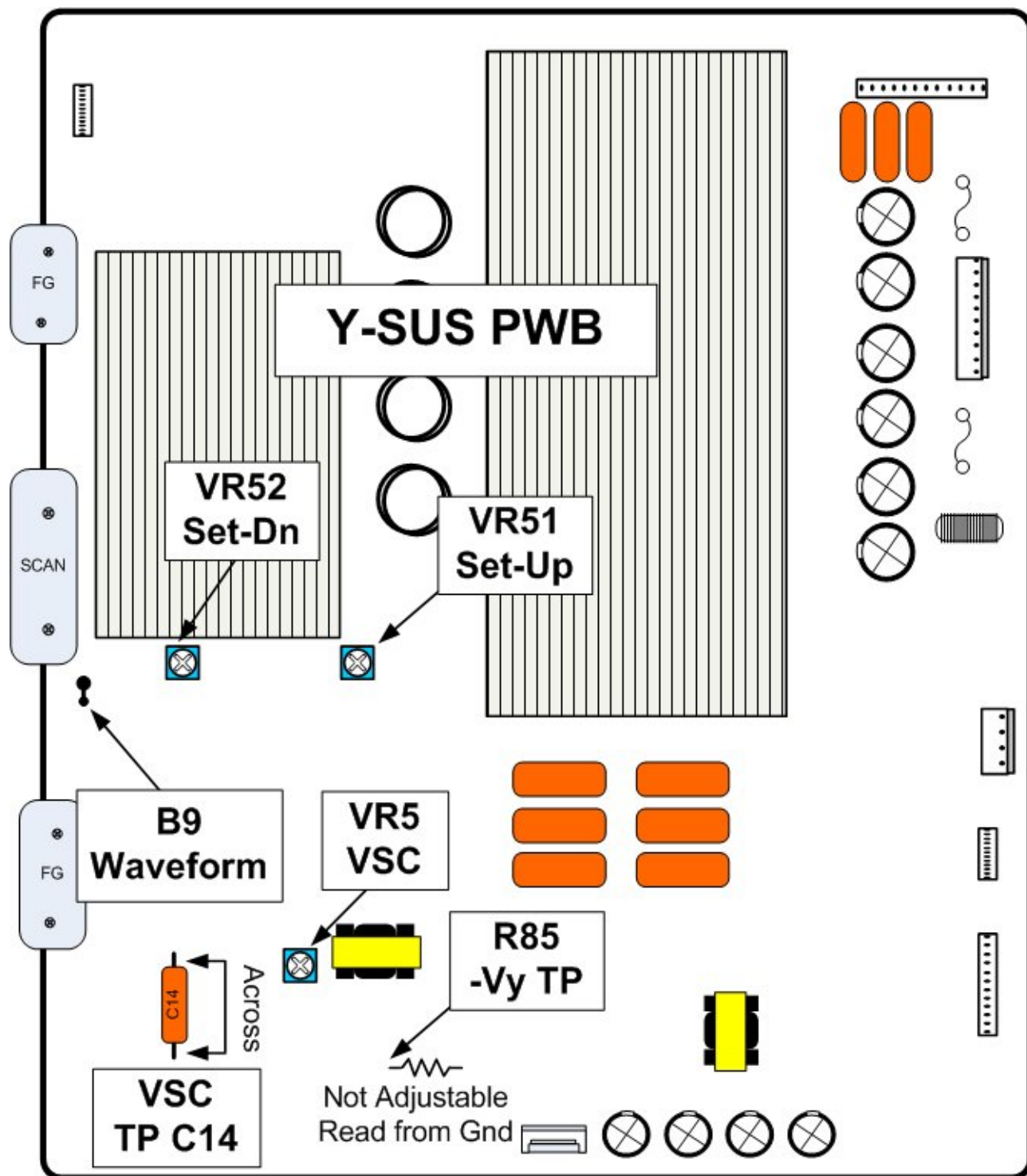1) **VS ADJUST:** Connect DVM to pin 8, 9 or 10 of **P805**.
Adjust **VR401** until the voltage matches the panel's voltage label.

2) **VA ADJUST:** Connect DVM to pin 1 or 2 of **P805**.
Adjust **VR501** until the voltage matches the panel's voltage label.

Model : PDP 50X4####
All Voltage : DC 5V
Va : 58V   Vs : 193V
100 / NA / 125 / NA / 100
Max Watt : 400 W (Full White)

50X4 PANEL

50X4 Y-SUS PWB ADJUSTMENT POINTS

50X4 PANEL

Y-SUS PWB

FG

SCAN

FG

VR52
Set-Dn

VR51
Set-Up

B9
Waveform

VR5
VSC

R85
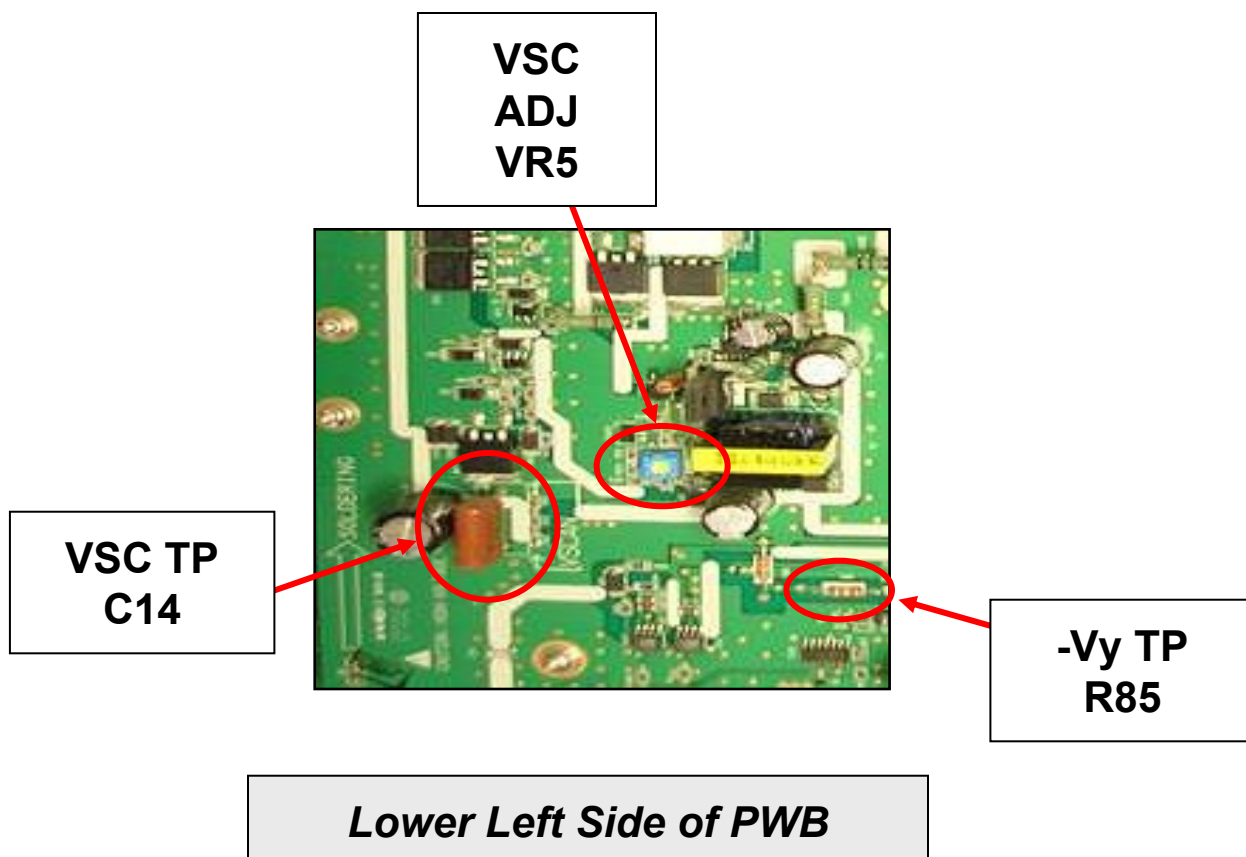-Vy TP

Across

C14

VSC
TP C14

Not Adjustable
Read from Gnd

50X4 VSC ADJUSTMENT

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
2) Place unit into White Wash from the Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as indicated on the panel voltage label on the panel.**

PROCEDURE: (See figure below for locations)

1) **Adjust VSC** using **VR5**. Measured across **C14**. Match Panel Voltage label ±1V.

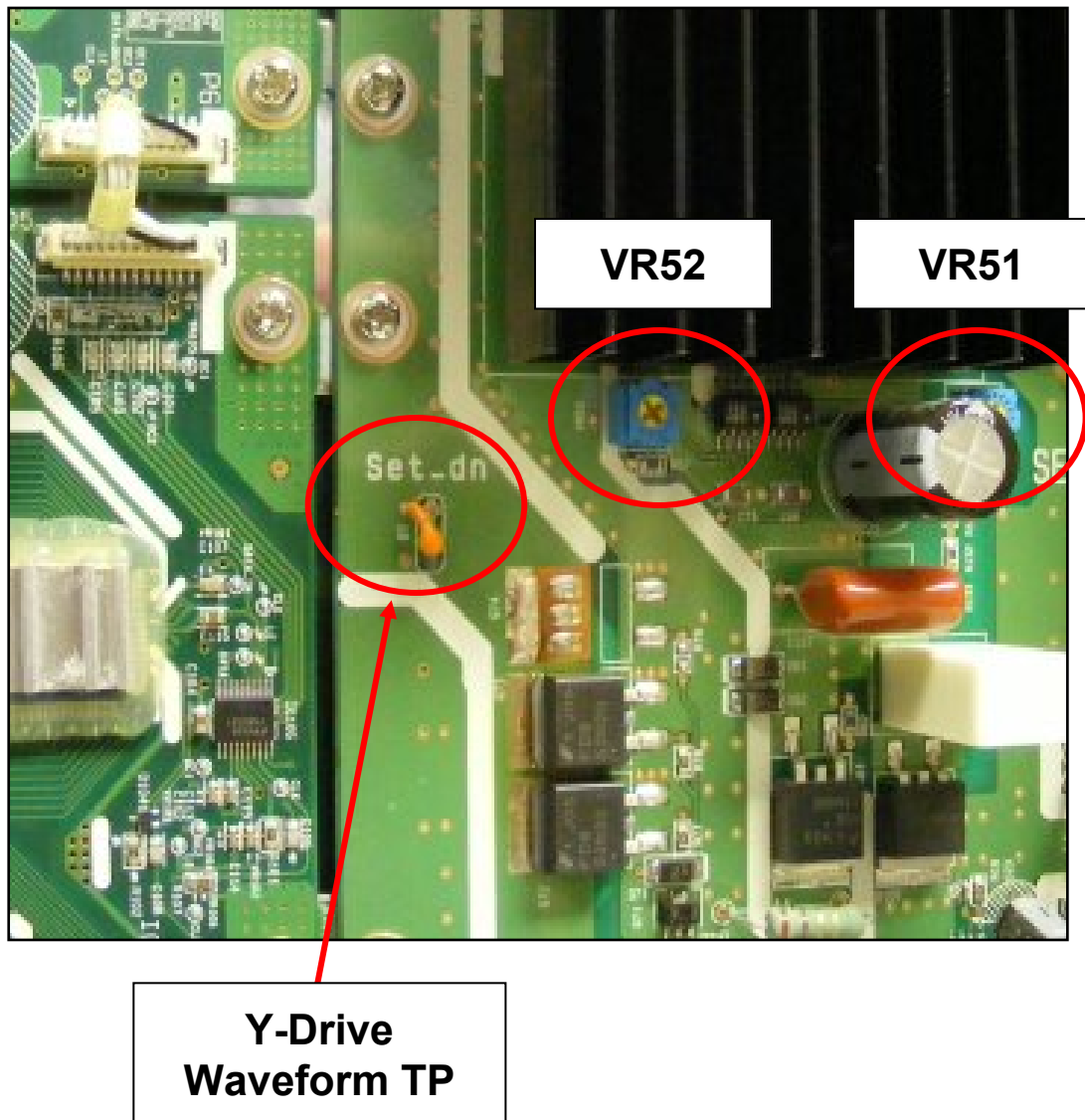2) Note: **-Vy is Not Adjustable**.
   However, it can be read across **R85**. (Approx: -130V)

VSC
ADJ
VR5

VSC TP
C14

-Vy TP
R85

Lower Left Side of PWB

50X4 Y Drive Waveform Test Point

Two pages back show the Y-SUS PWB

Figure Below:
Shows a close-up image of the Y-Drive waveform test point on the Y-SUS PWB. TP B9
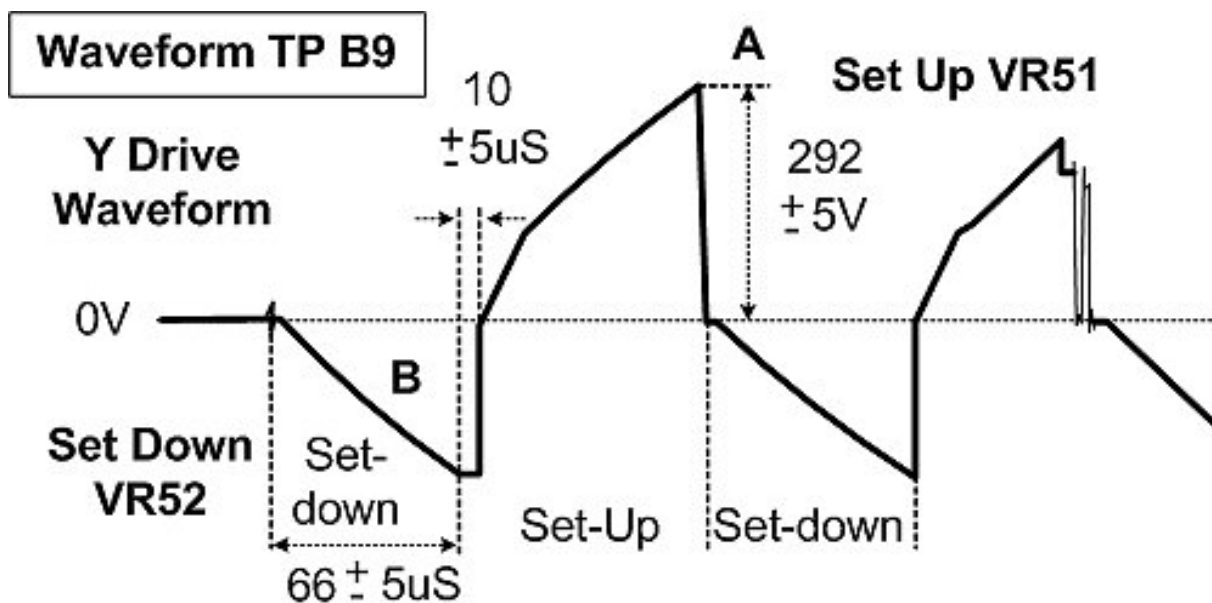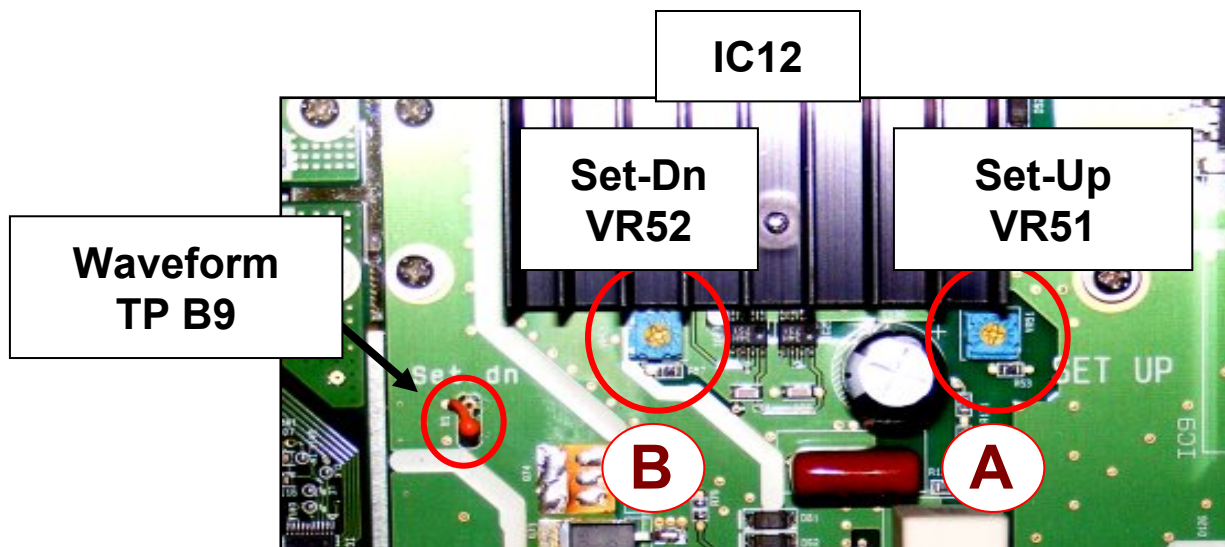

VR52

VR51

Y-Drive
Waveform TP

50X4 Y-Drive Waveform Adjustment

Using a Full White Raster, adjust the Set-up and
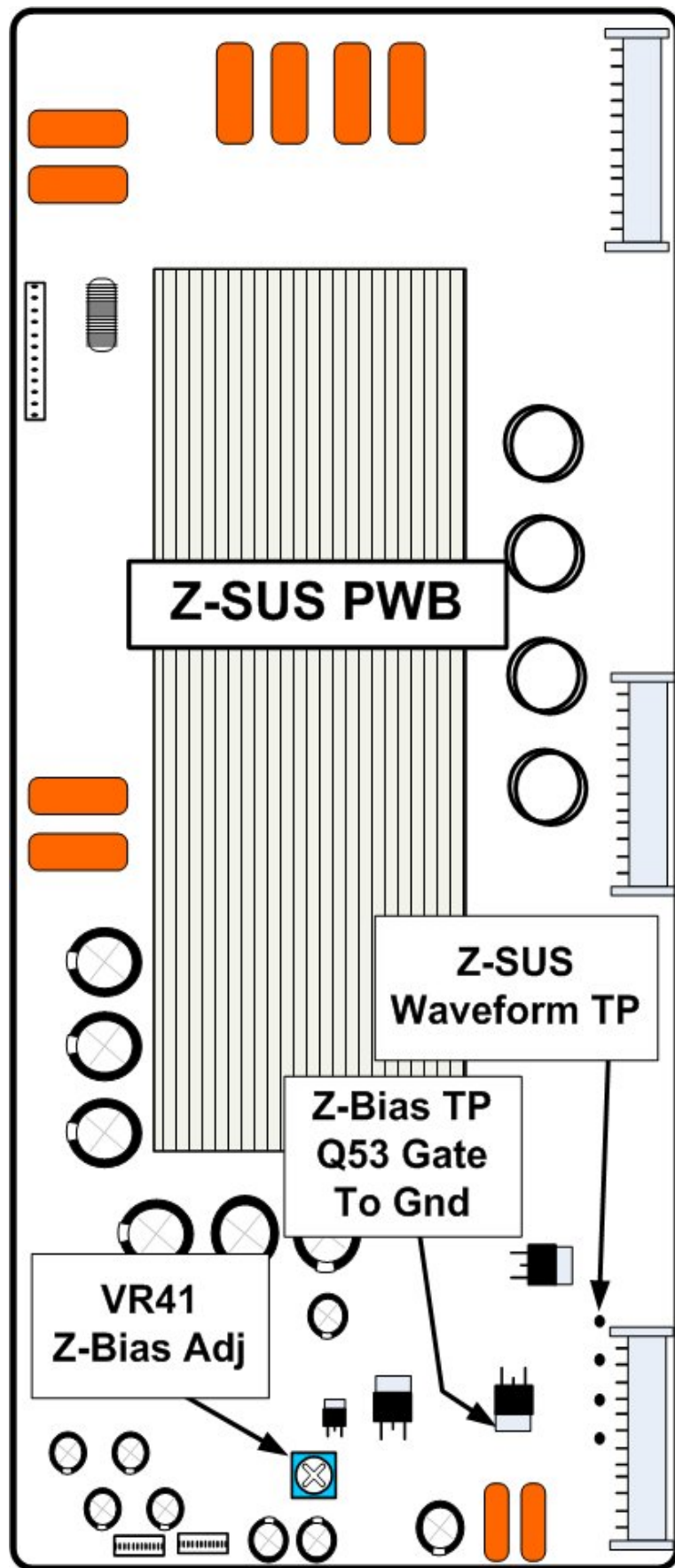Set-dn section of the Y-Drive waveform.

Oscilloscope TP on the "Waveform" TP **B9** on the Y-SUS PWB.

Set-Up: Adjust VR51 while observing area (**A**) and set to **292V ± 5V.**

Set-down: Adjust VR52 while observing area (**B**) and set to
66uSec ± 5uSec.

50X4 Z-SUS BOARD ADJUSTMENT POINTS

50X4 PANEL

Z-SUS PWB

Z-SUS
Waveform TP

Z-Bias TP
Q53 Gate
To Gnd

VR41
Z-Bias Adj

50X4 Z-SUS (Z-Bias) ADJUSTMENT:

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
2) Place unit into White Wash from the Customer's

Model : PDP 50X4 ####
All Voltage : DC 5V
Va : 58V   Vs : 193V
100 / NA / 125 / NA / 100
Max Watt : 400 W (Full White)

Zbias

3) Be sure to use all adjustment values as indicated on the panel voltage label in the upper left hand corner of the panel.

PROCEDURE: (See preceding page for locations)

1.) Place DC Volt meter on **VZB T**P (Top of R7 to Gnd).

2.) Adjust VZB (Z Bias) VR41 in accordance with your specific Panel's voltage label.

50X4 PANEL

Z-Bias
TP
Top R7

Z-Bias
ADJ
VR41
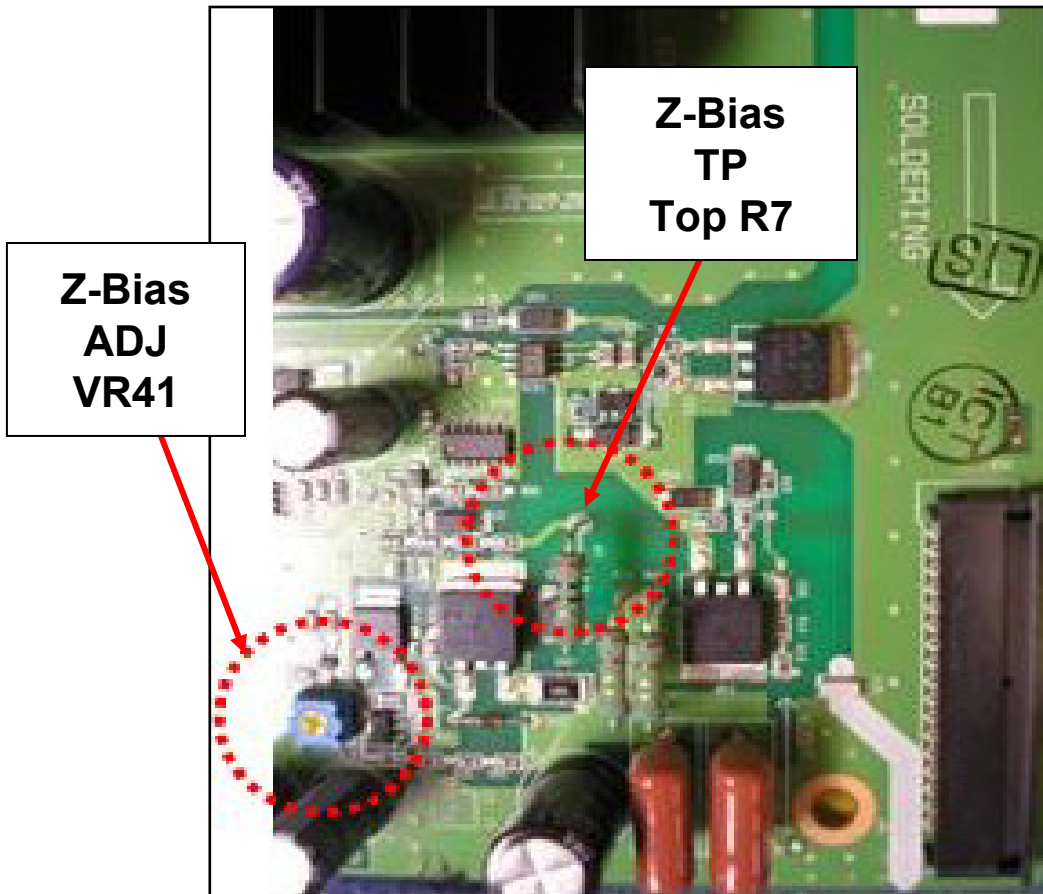
60H1 PANEL

QUICK REFERENCE

ALIGNMENT SECTION

MODELS USING THE 60H1 PANEL

60PY3D
60PB4D

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60H1 SMPS PWB ADJUSTMENT POINTS

VCC, VS and VA voltages are
Adjustable and should be adjusted to
The correct values as indicated by the
Panel label. Example shown to the
right. Always adjust "Highest to Lowest"
voltages. VCC, VS and VA adjustment resistors are shown in the
drawing below. They are located towards the top left hand side of the
board and VCC towards the bottom left hand side.
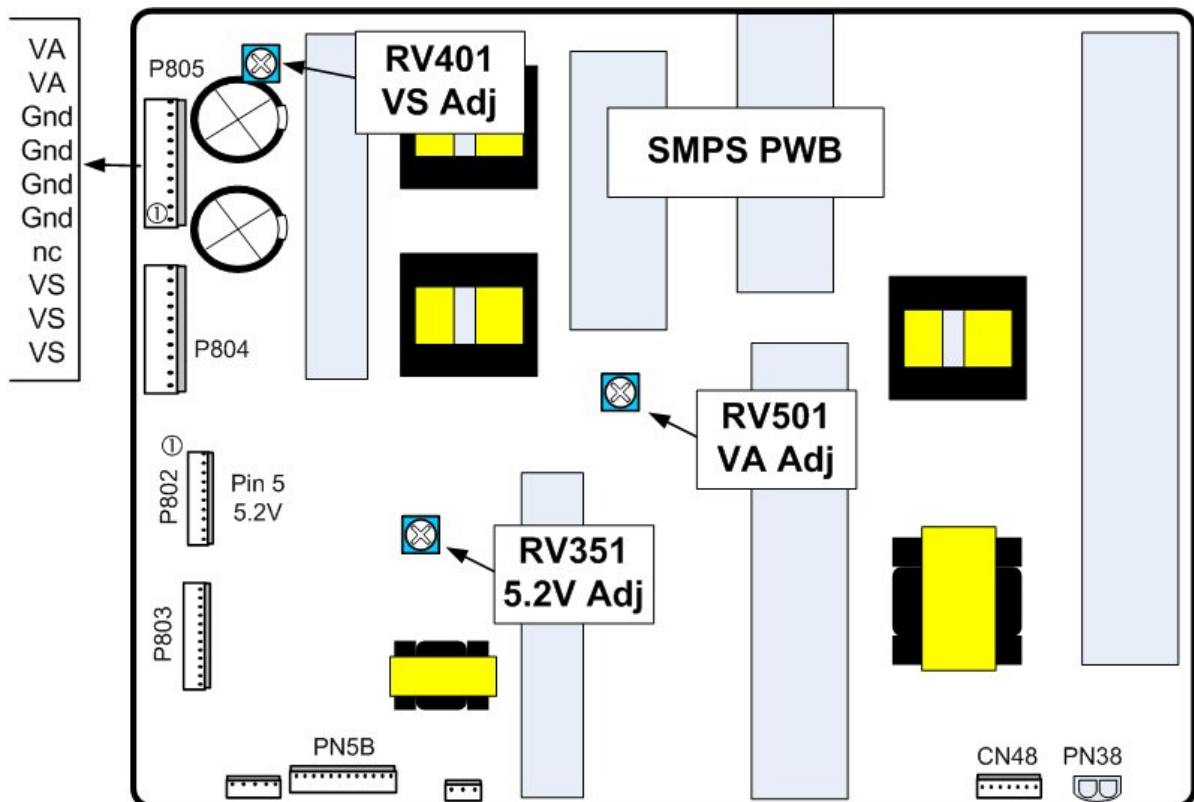RV401 is for VS, RV501 is for VA and RV601 is for VCC.

Model : PDP 60H1###
Voltage Setting: DC 5.2V/ Va:60/ Vs:191
230. / -90 / 120 / N.A. / 170
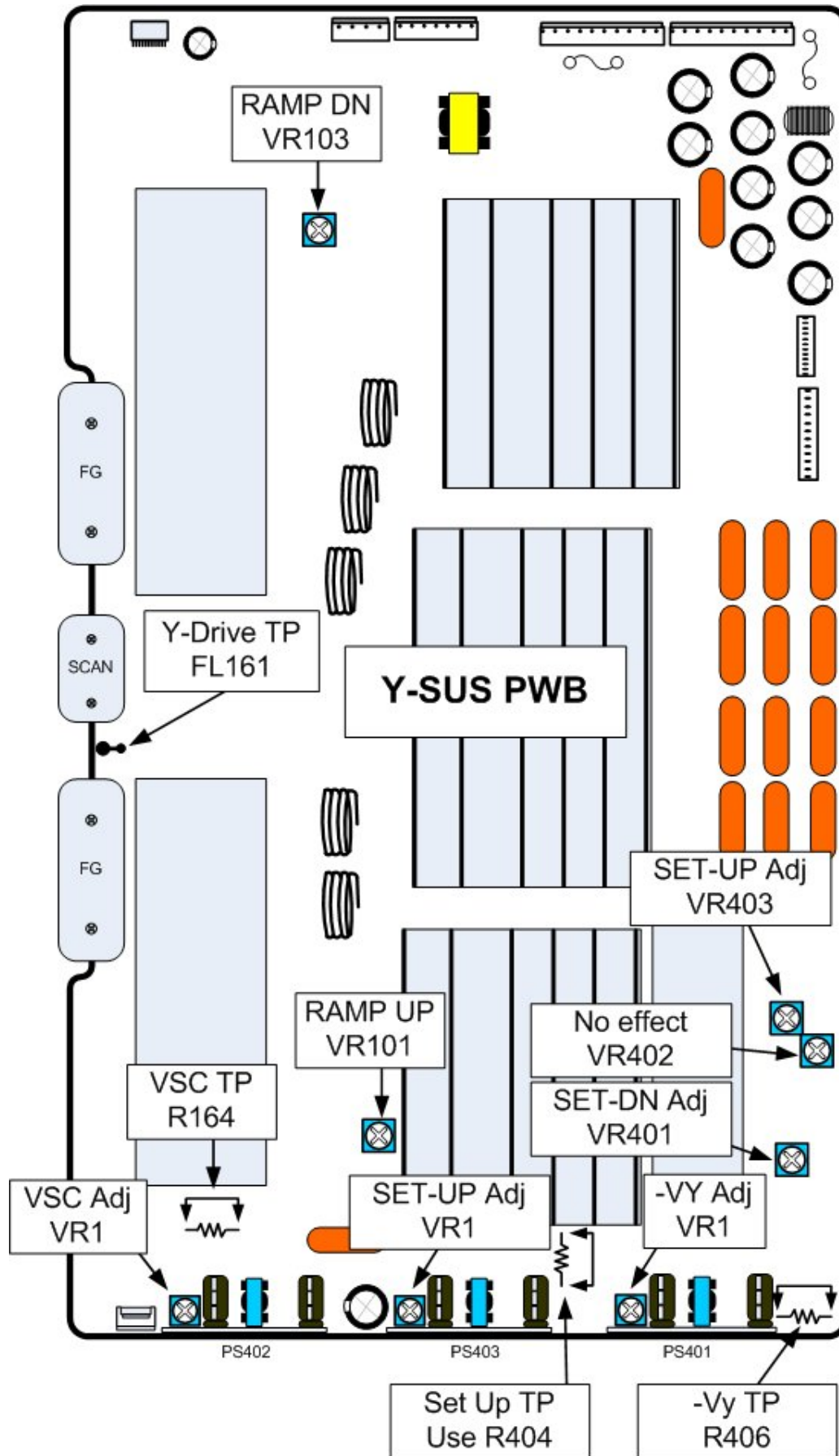Max Watt : 700 W (Full White)

VA-Adj   VS-Adj

Set should be in "Full White Raster"

1) **5.2V ADJUST:** Connect DVM to pin 5 of P802. Adjust RV351 until the voltage matches the panel's voltage label.

2) **VS ADJUST:** Connect DVM to pin 1, 2 or 3 of P805. Adjust RV401 until the voltage matches the panel's voltage label.

2) **VA ADJUST:** Connect DVM to pin 9 or 10 of P805. Adjust RV501 until the voltage matches the panel's voltage label.

All measurements taken from Chassis Gnd.

60H1 PANEL

60H1 Y-SUS PWB ADJUSTMENT POINTS

RAMP DN
VR103

Y-Drive TP
FL161

FG

SCAN

FG

Y-SUS PWB

SET-UP Adj
VR403

RAMP UP
VR101

No effect
VR402

VSC TP
R164

SET-DN Adj
VR401

VSC Adj
VR1

SET-UP Adj
VR1

-VY Adj
VR1

PS402

PS403

PS401

Set Up TP
Use R404

-Vy TP
R406

60H1 PANEL

60H1 VSC and –Vy Voltage Adjustment Locations

These voltages are adjustable and should be adjusted to the correct values as indicated by the panel's voltage label.

Model : PDP 60H1###
Voltage Setting: DC 5.2V/ Va:60/ Vs:191
230. / -90 / 120 / N.A. / 170
Max Watt : 700 W (Full White)

Set-up -Vy VSC

Example shown above. Panel in "White Wash"

Procedure:

**1.) Set-Up Adj variable resistor VR1 located on PS403.**

Adjust the Set-Up DC voltage while reading across **R404**.
Match your specific panel's voltage label.

2.) VSC Adj variable resistor VR1 located on PS402.

Adjust the VSC DC voltage while reading across **R164**.
Match your specific panel's voltage label.

3.) -Vy Adj variable resistor VR1 located on PS401.

Adjust the -Vy DC voltage while reading across **R406**.
Match your specific panel's voltage label.
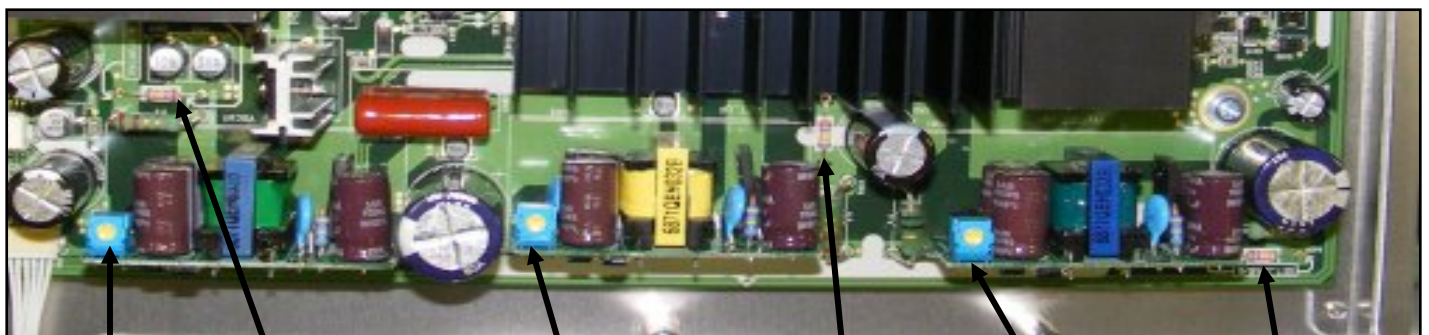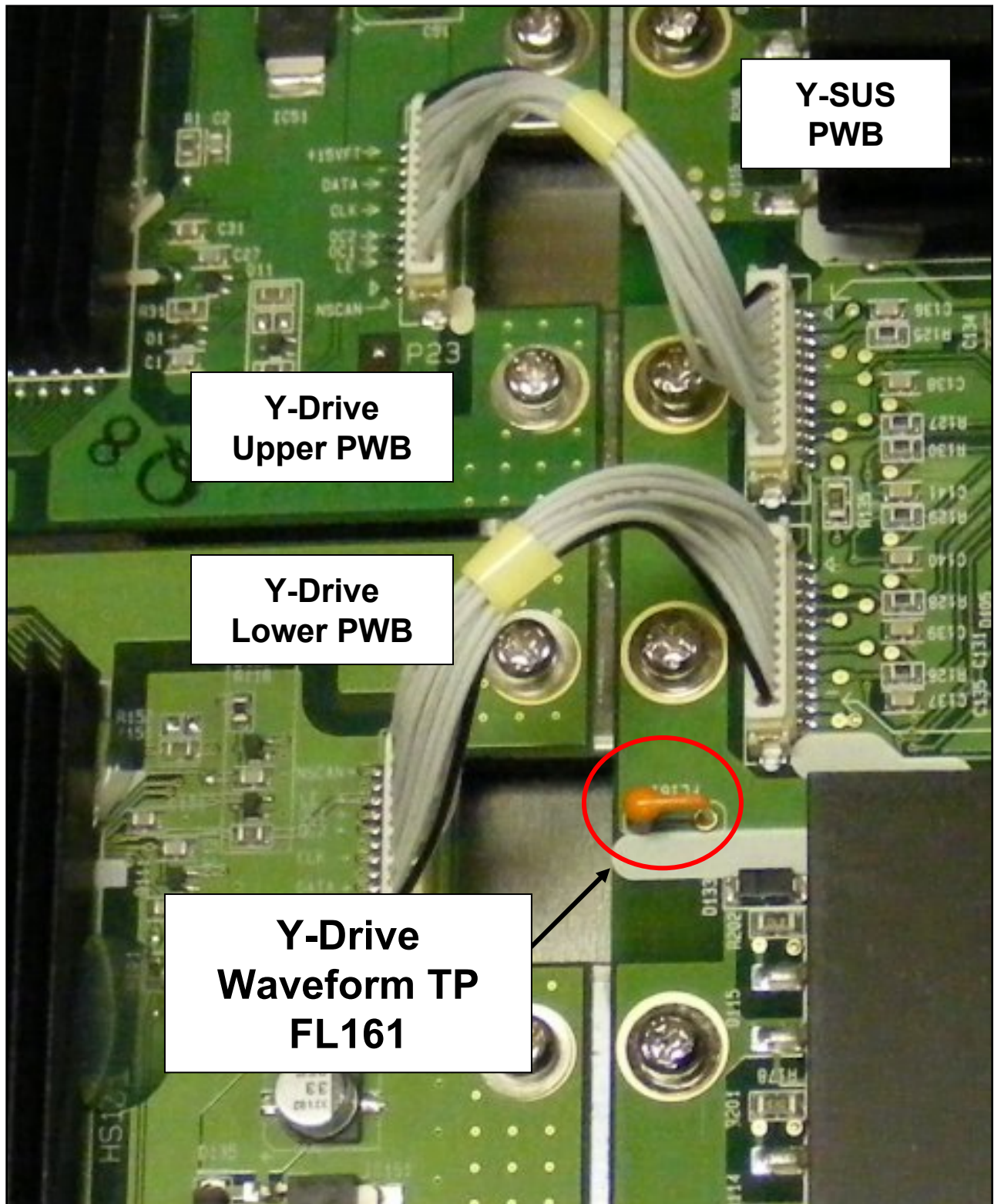

| VSC Adj | VSC TP R164 | Set-Up Adj | Set-Up TP R404 | -VY Adj | -VY TP R406 |

60H1 Y Drive Waveform Test Point

Y-SUS PWB

Y-Drive Upper PWB

Y-Drive Lower PWB

Y-Drive Waveform TP FL161

60H1 PANEL

60H1 Y-DRIVE WAVEFORM ADJUSTMENTS

PREPARATION:

1) Pre-Heat unit 10 Minutes before making adjustment
   Vs, Va, -Vy and VSC adjustments should be completed.
2) Place unit into White Wash from the Customer's Menu for all
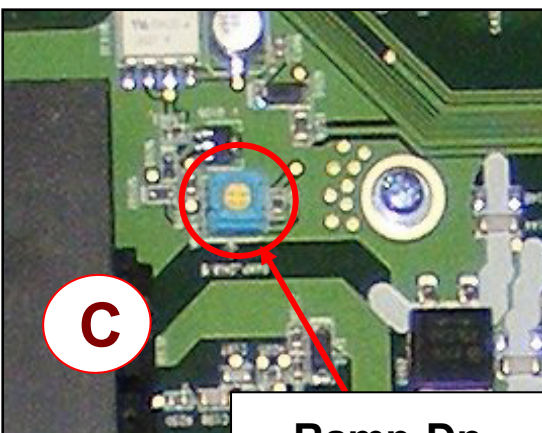3) **Be sure to use all adjustment values as indicated on the panel voltage label on the panel.**

See figures below for locations)
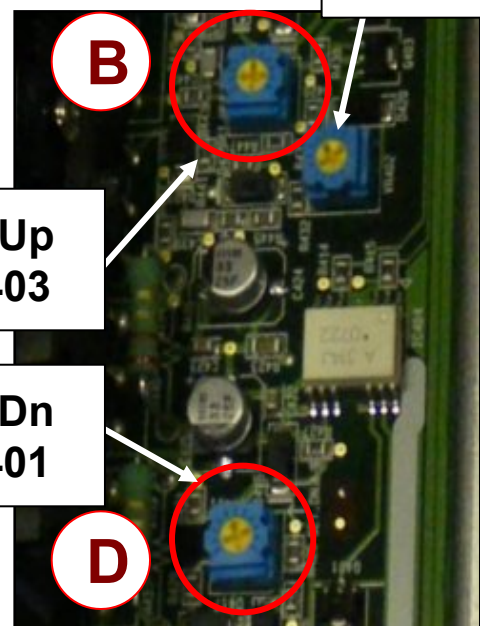
See Next page for adjustment specifications.

60H1 PANEL

A
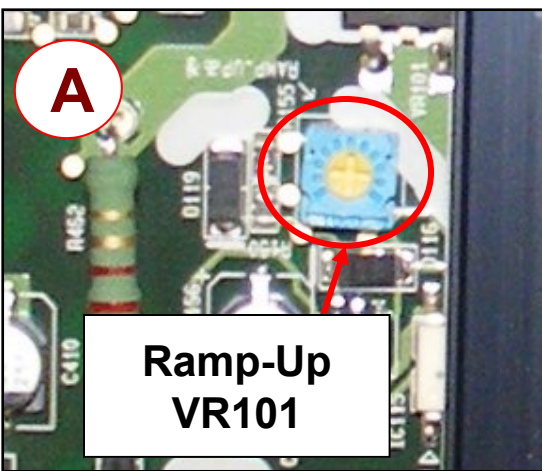
Ramp-Up VR101

Top Left Center Of Board

C

Ramp-Dn VR103

Lower Left Side Of Board

Do not adjust VR402

B

Set-Up VR403

Set-Dn VR401

D

Center Right Side of Board

60H1 Y-DRIVE WAVEFORM ADJUSTMENT

See Y-SUS Test Points and Adjustments diagram for locations.
All other adjustments should have been completed.

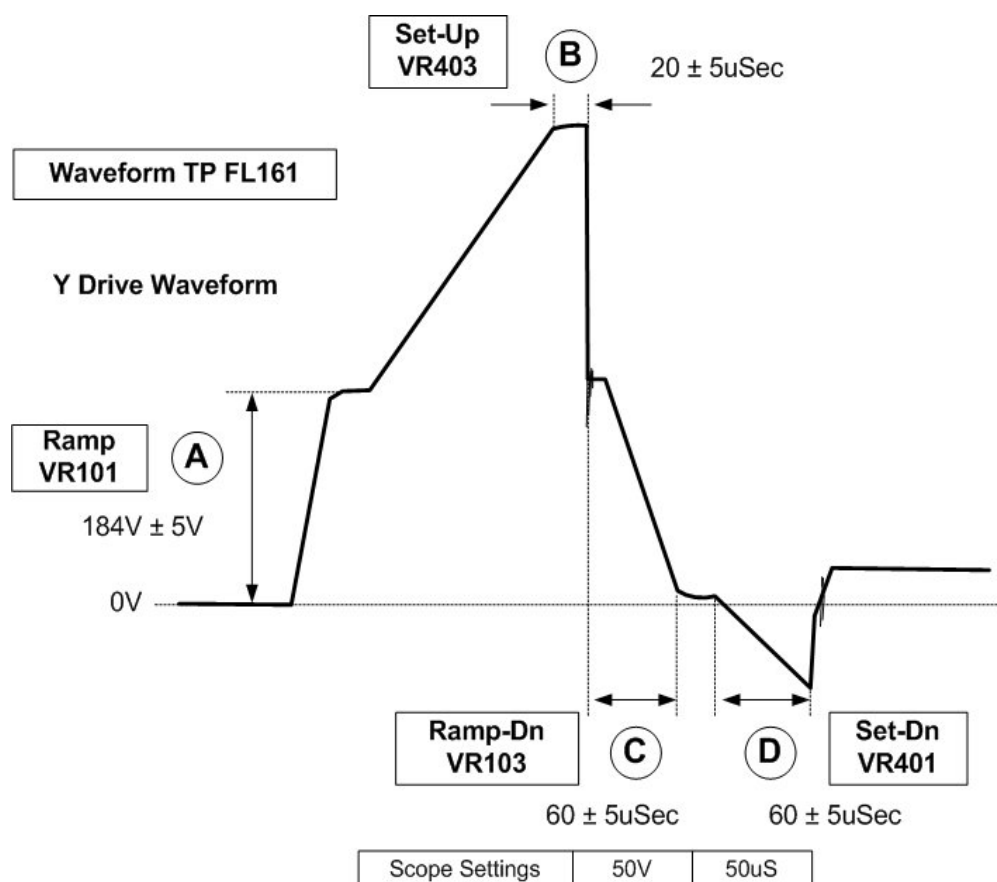Using a Full White Raster, adjust the Y-Drive waveform.
Scope "Waveform" TP FL161 on the Y-SUS PWB.

(A) Ramp: Adjust VR101 while observing area (**A**) and set to **184V ± 1V**.

(B) Set-Up: Adjust VR403 while observing area (**B**) and set to **20uSec ± 5uSec.**

(C) Ramp-Down: Adjust VR103 while observing area (**C**) and set to **60uSec ± 5uSec**.

(D) Set-Down: Adjust VR401 while observing area (**D**) and set to **60uSec ± 5uSec**.

Set-Up VR403 (B) 20 ± 5uSec

Waveform TP FL161

Y Drive Waveform

Ramp VR101 (A)

184V ± 5V

0V

Ramp-Dn VR103 (C) 60 ± 5uSec

(D) 60 ± 5uSec Set-Dn VR401

| Scope Settings	50V	50uS

60H1 Z-SUS PWB ADJUSTMENT POINTS

The picture to the right represents a 60H1 Panel Voltage Label. This is for an example only.

Model : PDP 60H1###
Voltage Setting: DC 5.2V/ Va:60/ Vs:191
230. / -90 / 120 / N.A. / 170
Max Watt : 700 W (Full White)

Zbias

You should adjust your set's Z-Bias adjustment to your specific Panel's Voltage Label not this book.

VR1
Z-Bias
Adj

P3

P14

Z-Bias TP
Q2 Drain
To Chassis
Gnd

Z-SUS PWB

FL22
Z-SUS
Waveform TP

P8

P15
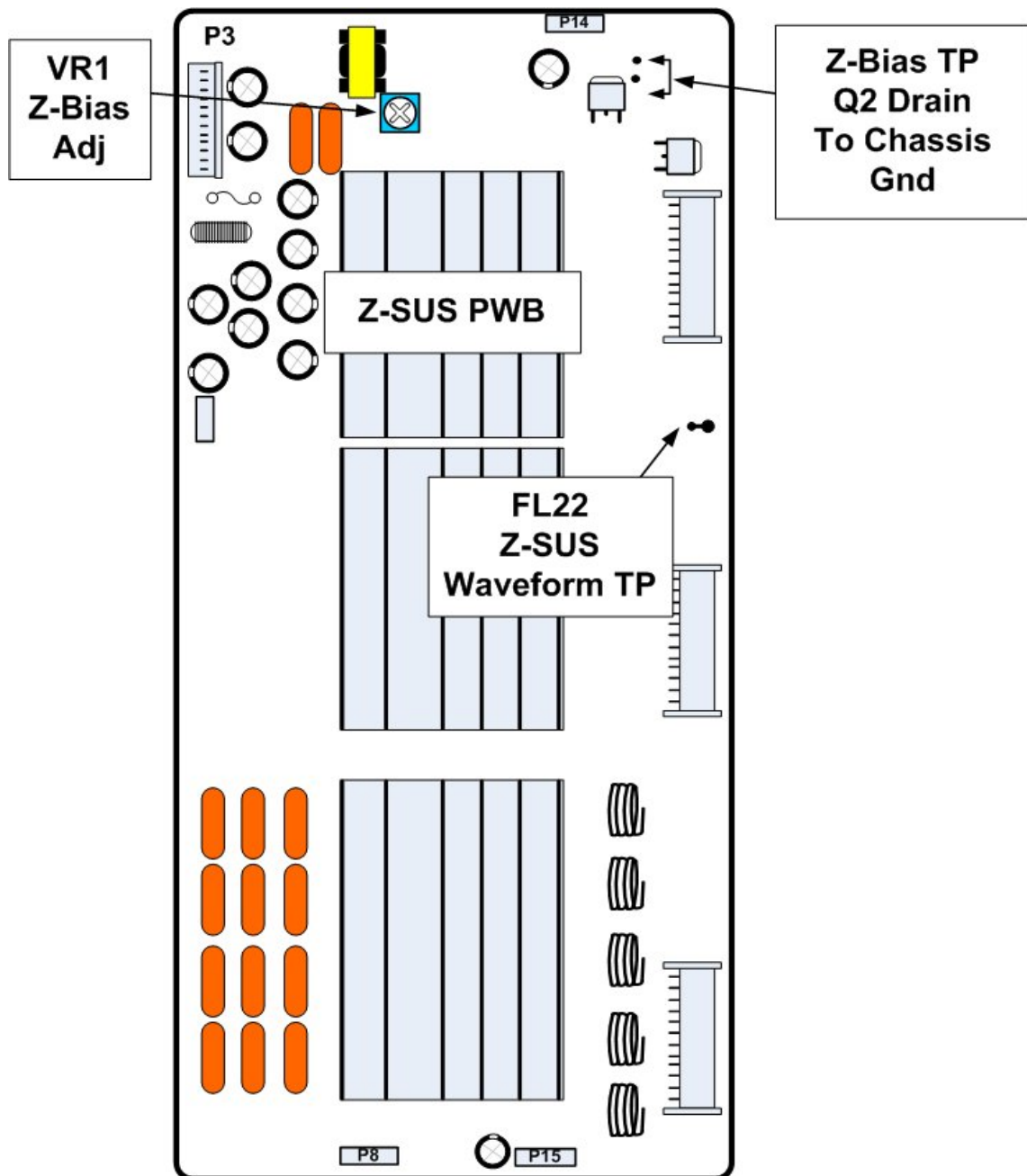
60H1 Z-SUS (Z-Bias) ADJUSTMENT:

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
2) Place unit into White Wash from the Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as indicated on the panel voltage label in the upper right hand corner of the panel.**
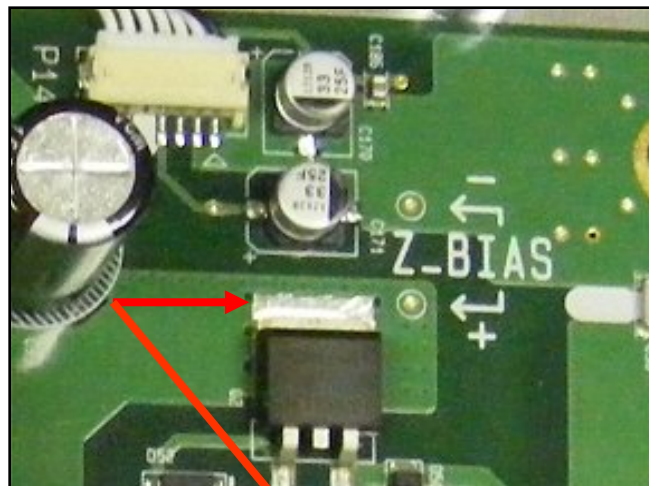
PROCEDURE: (See preceding page for locations)

1. Place DC Volt meter across **VZB TP** (Near Q2) or measure from **Q2 Drain to Chassis Ground**.
2. Adjust **VZB (Z Bias) VR1** in accordance with your specific Panel's voltage label.

Model : PDP 60H1###
Voltage Setting: DC 5.2V/ Va:60/ Vs:191
230. / -90 / 120 / N.A. / 170
Max Watt : 700 W (Full White)
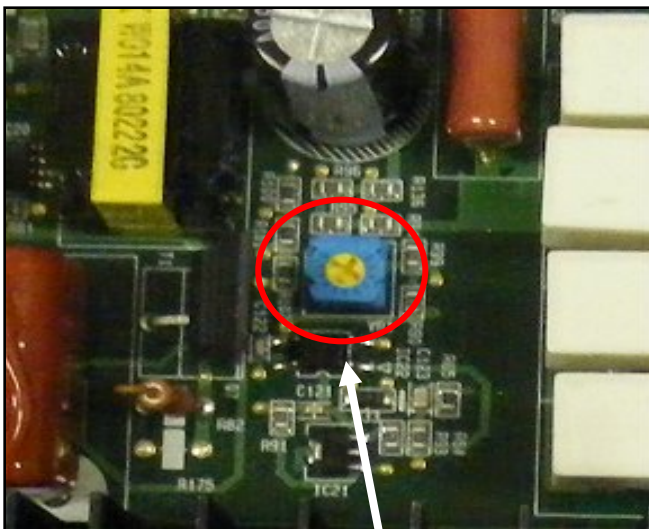
Zbias

Z-Bias ADJ VR1

**Z-Bias TP
Q2 Drain to Chassis Gnd**

Top Of Z-SUS PWB

60H2 PANEL

QUICK REFERENCE

ALIGNMENT SECTION

MODELS USING THE 60H2 PANEL

60PG30FC-UA
60PG30F-UA
60PG3HFD-UA
60PG60F-UA
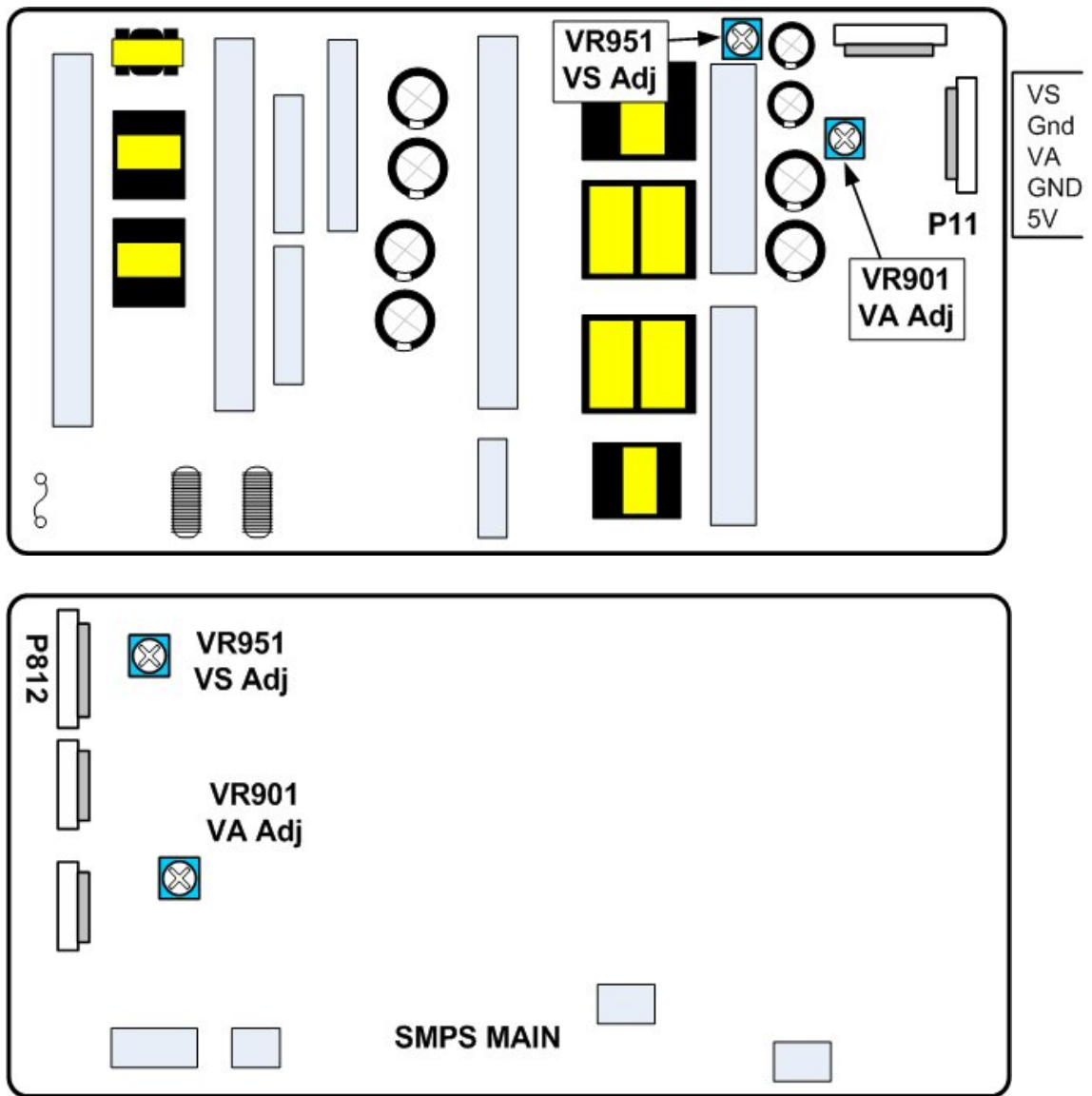**60PG70F-UB**
60PG7HFD-UB

LG

Life's Good

Intentionally left blank

60H2 SMPS PWBs ADJUSTMENT POINTS

There may be different Power Supply layout

Locate the VA and VS adjustment Pots and the VS and VA output pins for adjustment. Then match to your specific panel's voltage label.

VR951
VS Adj

VR901
VA Adj

VS
Gnd
VA
GND
5V

P11

P812

VR951
VS Adj

VR901
VA Adj

SMPS MAIN

60H2 SMPS PWBs ADJUSTMENT POINTS

These two voltages are adjustable and should be adjusted to the correct values as indicated by the panel label.

Example shown in the drawing below.

Always adjust "Highest to Lowest" voltages.
VS and VA adjustment resistors are shown in the drawing below.
They are located at the top left of the board.
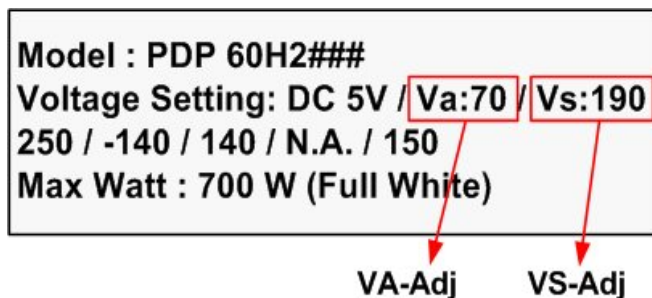VR951 is the VS adjustment pot.
VR901 is the VA adjustment pot.

Set should be in "Full White Raster"
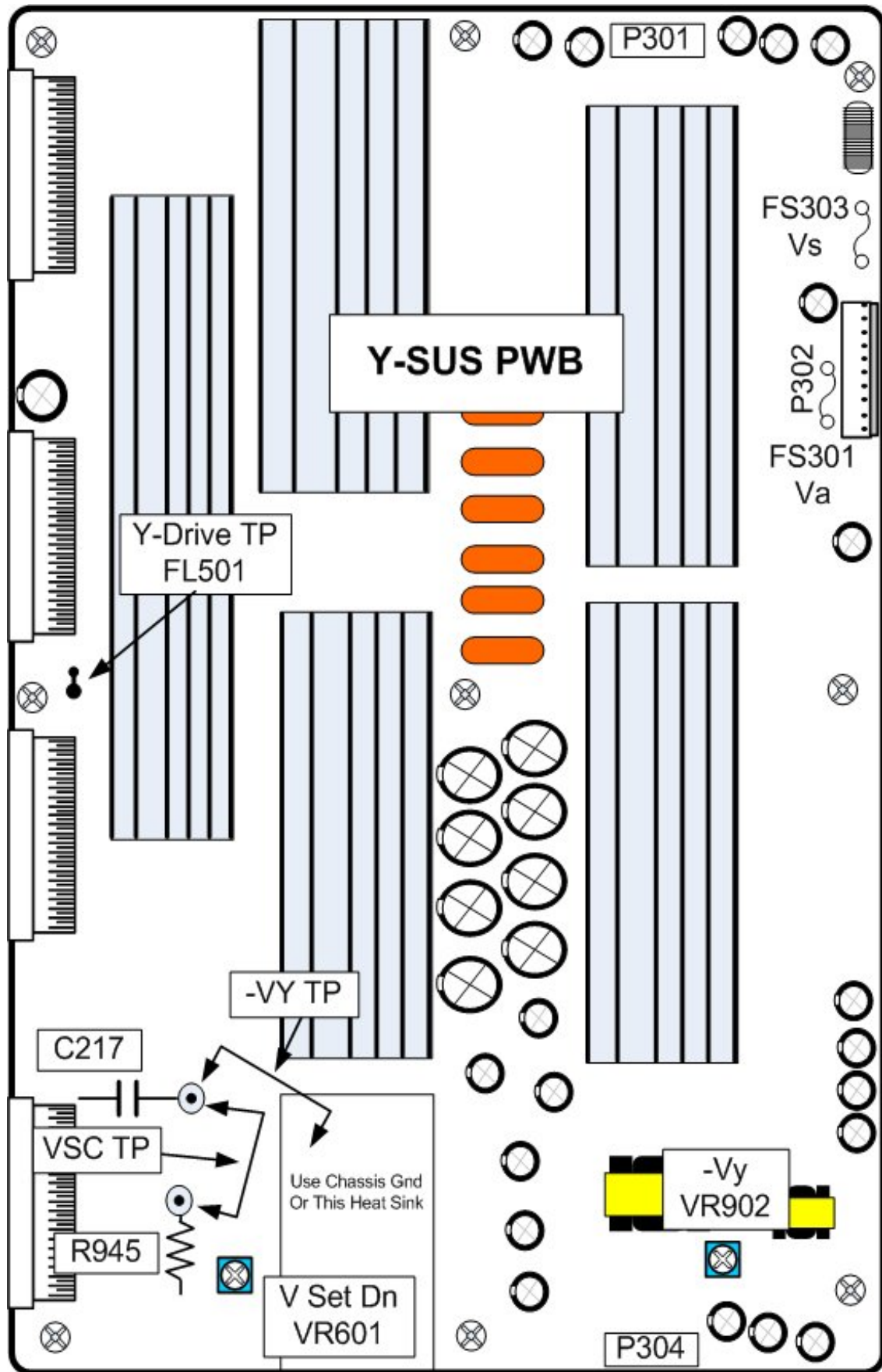
1) **VS ADJUST:** Connect DVM to the VS output pin.
Adjust the VS adjustment pot until the voltage matches your specific panel's voltage label.

2) **VA ADJUST:** Connect DVM to the VS output pin.
Adjust the VA adjustment pot until the voltage matches your specific panel's voltage label.

Model : PDP 60H2###
Voltage Setting: DC 5V / Va:70 / Vs:190
250 / -140 / 140 / N.A. / 150
Max Watt : 700 W (Full White)

VA-Adj   VS-Adj

60H2 Y-SUS PWB ADJUSTMENT POINTS

60H2 PANEL

P301

FS303
Vs

P302

FS301
Va

Y-SUS PWB

Y-Drive TP
FL501

-VY TP

C217

VSC TP

Use Chassis Gnd
Or This Heat Sink

R945

V Set Dn
VR601

-Vy
VR902

P304

60H2 -Vy ADJUSTMENT

PREPARATION:

(1) Pre-Heat unit for at least 10 Minutes before making adjustments.

(2) Place unit into White Wash from the Customer's Menu for all adjustments.

(3) Be sure to use all adjustment values as indicated on the your specific panel's voltage label. See sample above.

Model : PDP 60H2###
Voltage Setting: 5.0V/Va:70/Vs:190
250 / -140 / 140 / N.A. / 150
Max Watt : 700 W (Full White)

-Vy

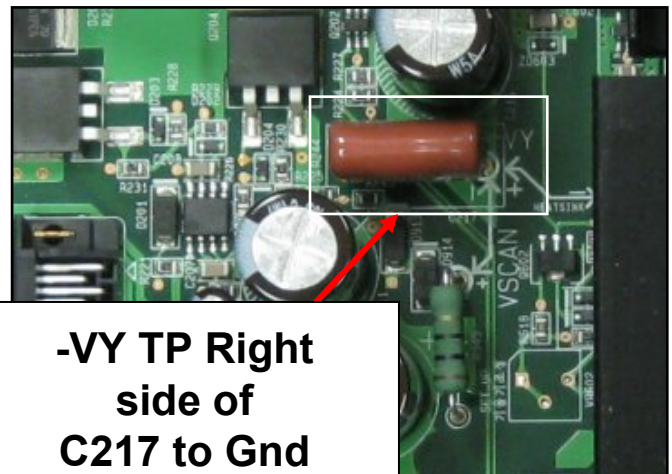## PROCEDURE: (See preceading page for locations)

Lower Left of PWB

How to Adjust -Vy

(1) -Vy Voltage adjustment Measure and adjust the voltage between **C217** and GND on Y B/D .
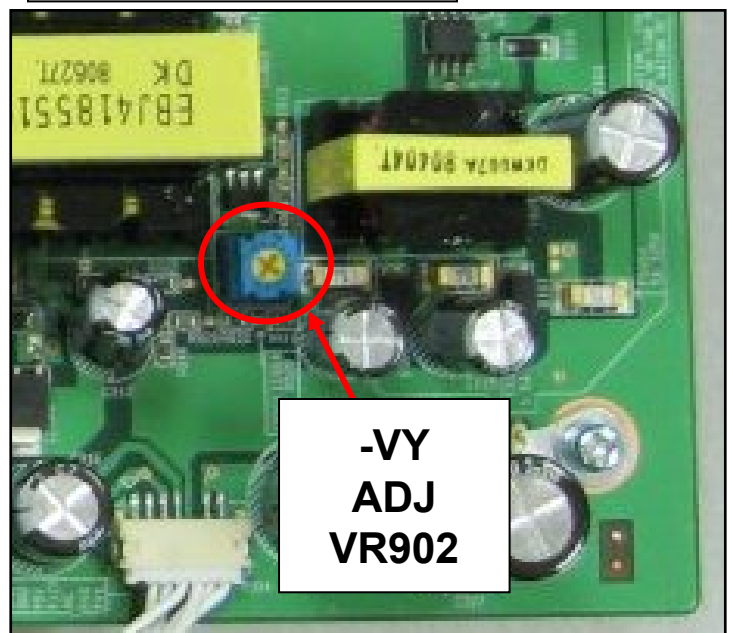
Note: The silkscreen indicates to use the heat sink, but good connection is difficult. Use chassis Gnd.

-VY TP Right side of C217 to Gnd

Bottom Right of PWB

(2) Turn the variable resistor of **VR902** until voltage matches your specific Panel's Voltage Label.
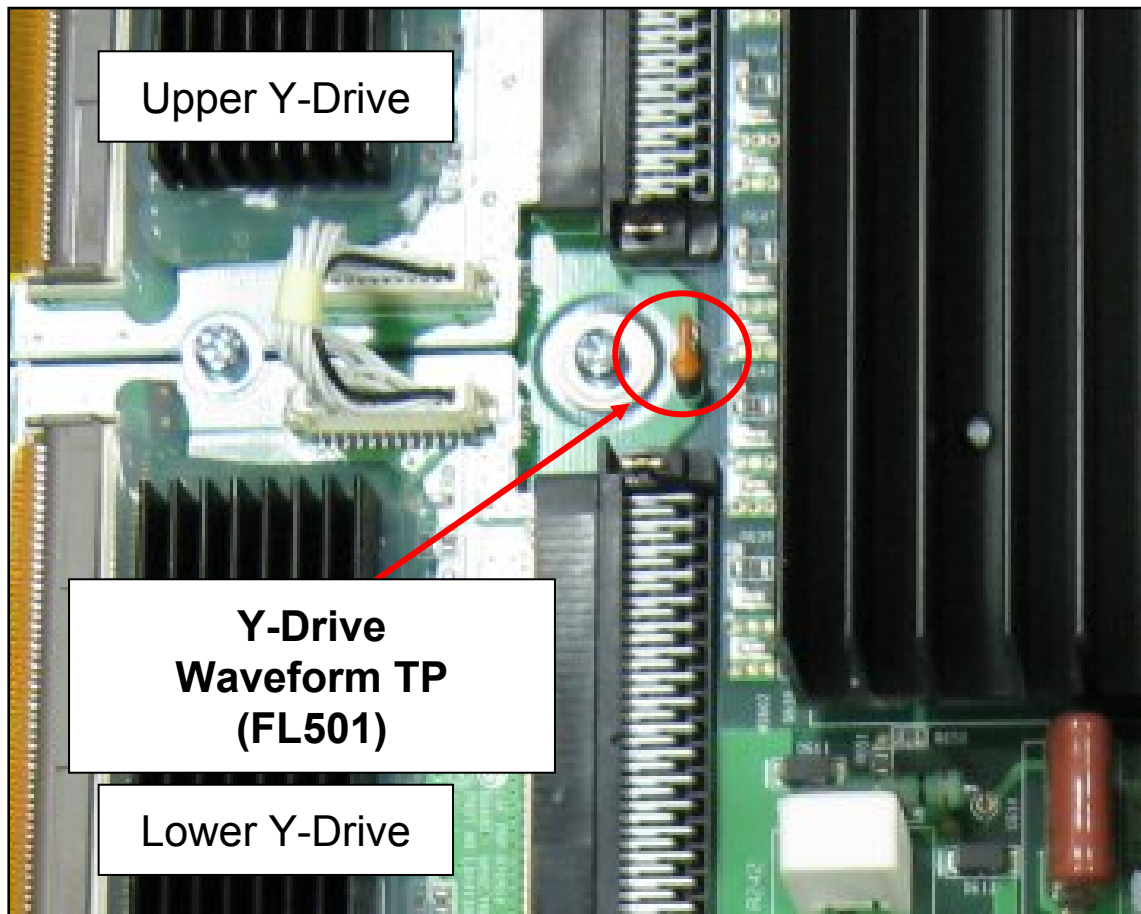

-VY ADJ VR902

60H2 PANEL

60H2 Y Drive Waveform Test Point

Two pages back show the Y-SUS PWB

Figure Below:
Shows a close-up image of the Y-Drive waveform test point FL501 on the Y-SUS PWB.

TP LOCATION

Upper Y-Drive

Y-Drive
Waveform TP
(FL501)

Lower Y-Drive

VR601 ADJUSTMENT LOCATION

Set-Dn
ADJ
VR601
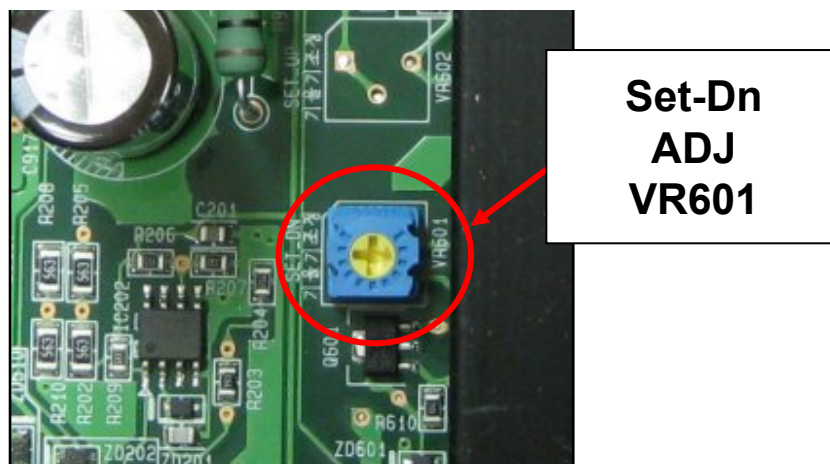
60H2 Y-SUS ADJUSTMENT:

PREPARATION:

(1) Pre-Heat unit for at least 10 Minutes before making adjustments.
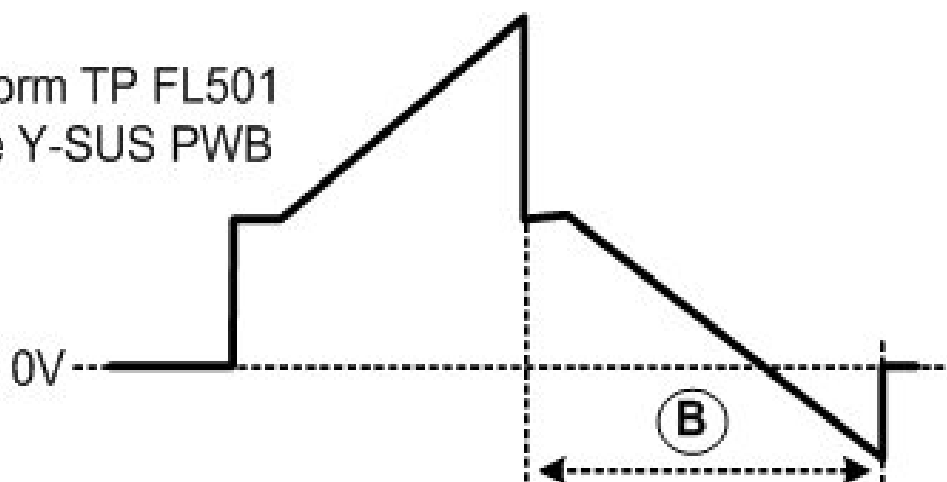(2) Place unit into White Wash from the Customer's Menu for all adjustments.

PROCEDURE: (See Y-SUS PWB drawing for locations)
Note: (Ramp-Up) is not adjustable in this panel.

VR601 (Y-SET DOWN) waveform adjustment:

1) Connect Oscillicope to **FL501** on the Y-SUS PWB.
   (Y-Drive Waveform Test Point, see preceeding page)

2) Adjust **VR601** on Y-SUS until point (**B**) in the figure
   below is **420uS ±5uS**. (See preceding page for location)

Waveform TP FL501
On the Y-SUS PWB

0V

(B)

V Set-Down (Ramp Dn) VR601 420 ± 5us

Scope Settings	100V	100uS

60H2 Z-SUS PWB ADJUSTMENT POINTS

60H2 PANEL

P101

P105

Z-SUS PWB

P100

**VR200
Z-Bias Adj**

**Z-Bias TP
D205 top pin
to bottom of
R525**

D205

R525

P102
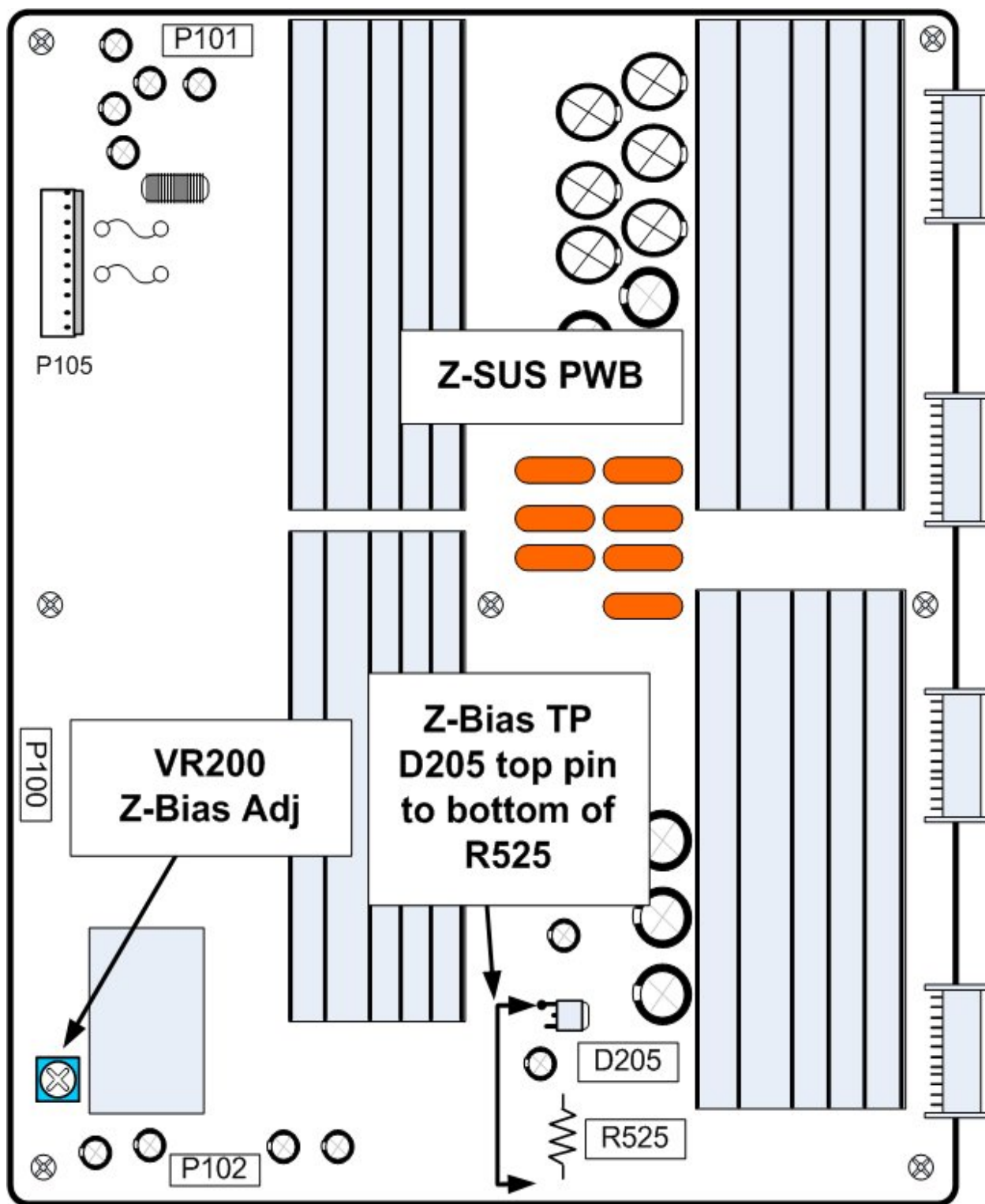
60H2 Z-SUS (Z-Bias) ADJUSTMENT:

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
2) Place unit into White Wash from the Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as indicated on the panel voltage label in the upper left hand corner of the panel.**

Model : PDP 60H2###
Voltage Setting: 5.0V/Va:70/Vs:190
250 / -140 / 140 / N.A. / 150
Max Watt : 700 W (Full White)

Zbias

PROCEDURE: (See preceding page for locations)

1.   Place DC Volt meter on **VZB TP**
       Measured from the Top leg of **D205** to the lower side of **R525**.

2.   **Adjust VZB (Z Bias) VR200** in accordance with your specific Panel's Voltage Label.

Z-Bias ADJ VR200

Z-Bias TP D205 / R525
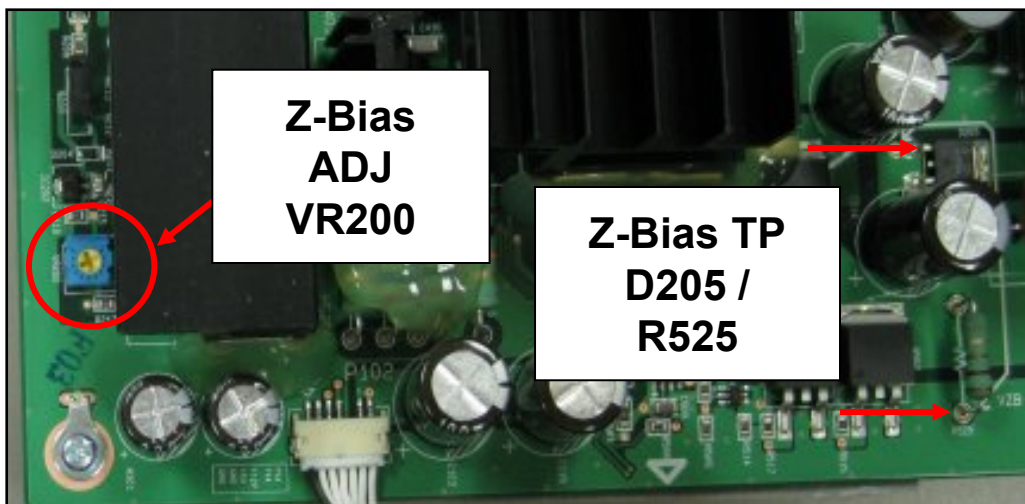
60H3 PANEL

QUICK REFERENCE

ALIGNMENT SECTION

MODELS USING THE 60H3 PANEL

60PS11-UA
60PS60-UA
60PS60C-UA
60PS80-UA

LG

Life's Good

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60H3 SMPS BOARD ADJUSTMENT POINTS

Set should be in "White Wash"

These two voltages are adjustable and should be adjusted to the correct values as indicated by your Panel's Voltage Label. Example shown on the right.

Always adjust "Highest to Lowest" voltages.
VS and VA adjustment resistors are shown in the drawing below.
They are located at the top Right of the board.

Model : PDP 60H3###
All Voltages : DC 5.0V
Va:68   Vs:196
N.A. / -178 / 140 / N.A. / 100
Max Watt : 700 W (Full White)

VAS Adj   VS Adj
VR901   VR951

1) **VS ADJUST:**
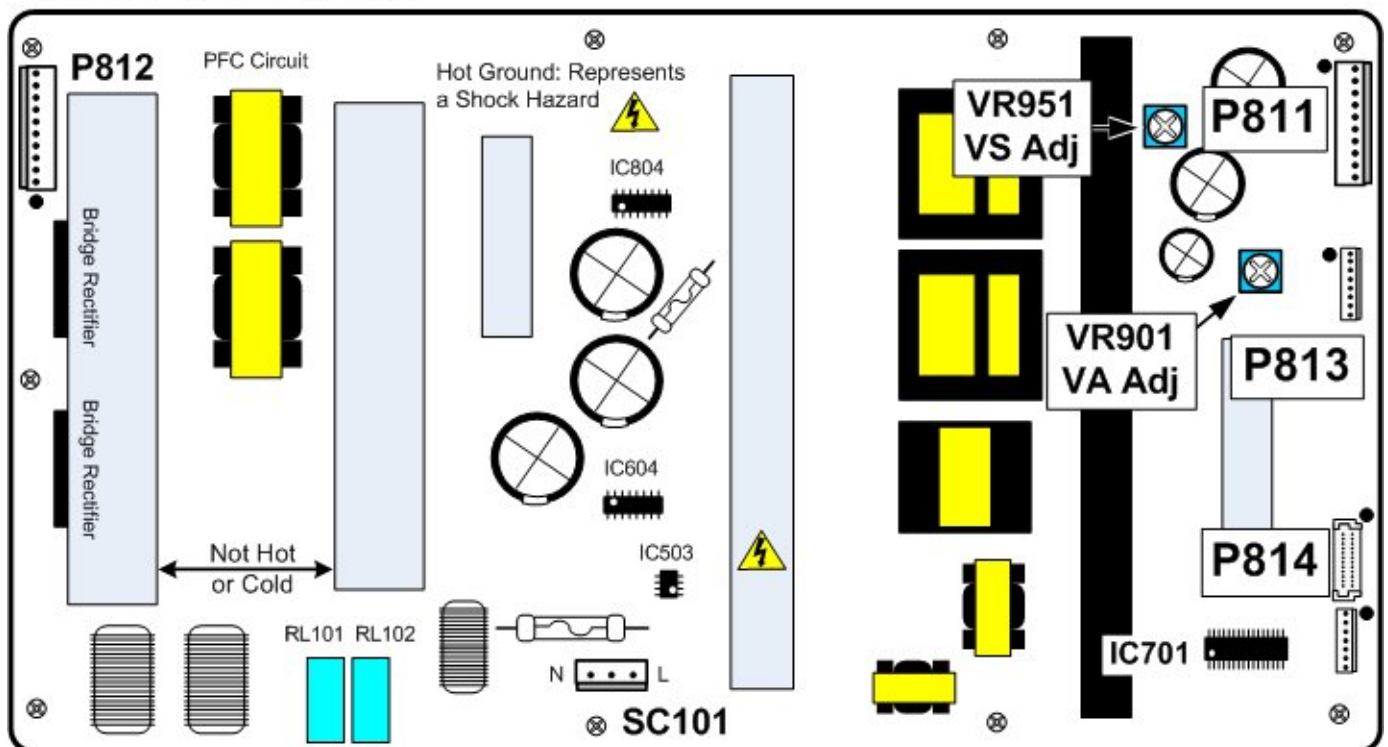   Connect DVM to pin 1 or 2 of P811 or P812.
   Adjust VR951 until the voltage matches your panel's voltage label.

2) **VA ADJUST:**
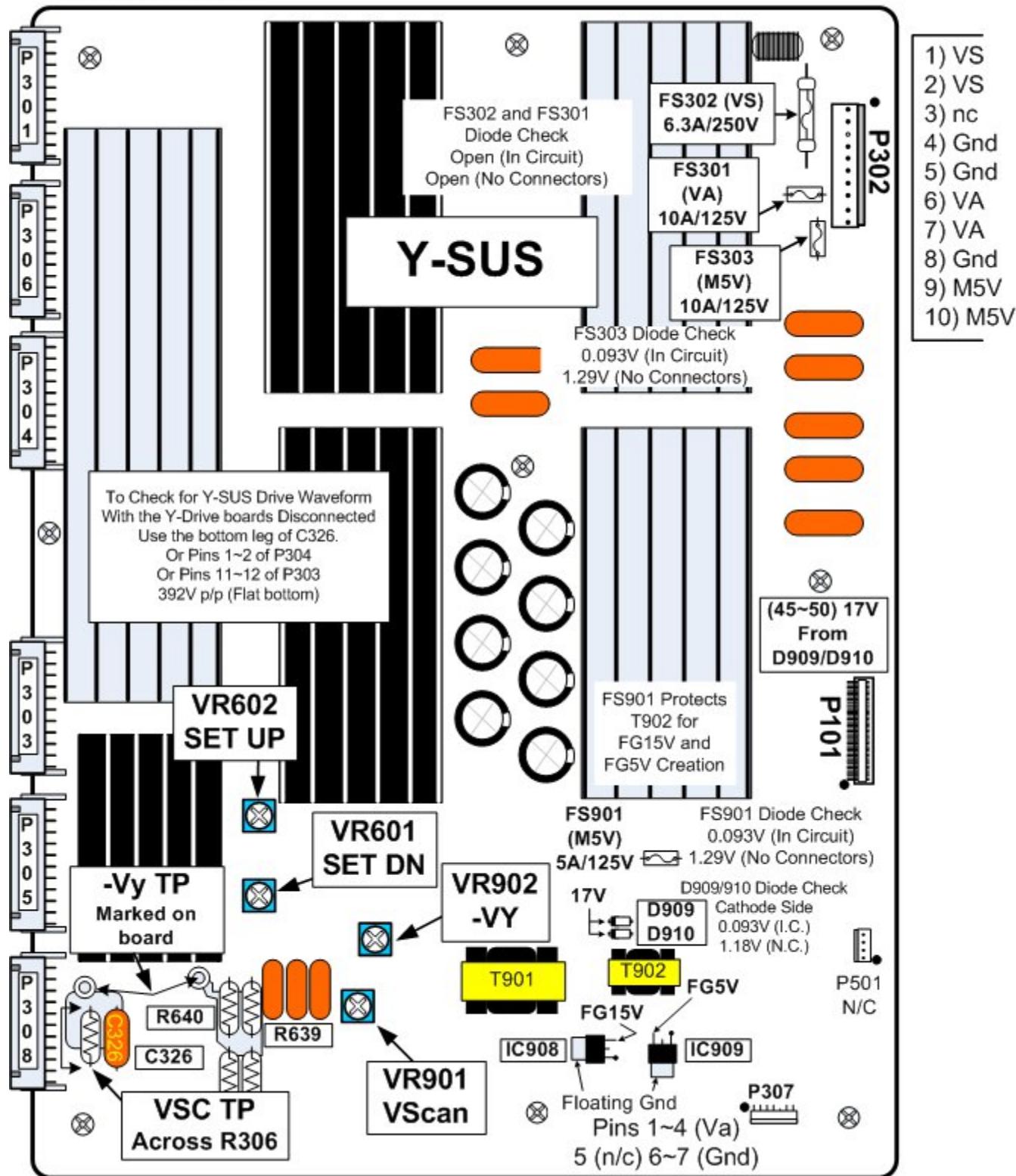   Connect DVM to pin 6 or 7 of P811 or P812.
   Adjust VR901 until the voltage matches your panel's voltage label.

p/n EAY59547002

60H3 Y-SUS BOARD ADJUSTMENT POINTS

P/N EBR55492901

Y-SUS

FS302 and FS301
Diode Check
Open (In Circuit)
Open (No Connectors)

FS302 (VS)
6.3A/250V

FS301
(VA)
10A/125V

FS303
(M5V)
10A/125V

1) VS
2) VS
3) nc
4) Gnd
5) Gnd
6) VA
7) VA
8) Gnd
9) M5V
10) M5V

FS303 Diode Check
0.093V (In Circuit)
1.29V (No Connectors)

To Check for Y-SUS Drive Waveform
With the Y-Drive boards Disconnected
Use the bottom leg of C326.
Or Pins 1~2 of P304
Or Pins 11~12 of P303
392V p/p (Flat bottom)

**VR602
SET UP**

**VR601
SET DN**

**VR902
-VY**

FS901 Protects
T902 for
FG15V and
FG5V Creation

(45~50) 17V
From
D909/D910

FS901
(M5V)
5A/125V

FS901 Diode Check
0.093V (In Circuit)
1.29V (No Connectors)

17V

D909
D910

D909/910 Diode Check
Cathode Side
0.093V (I.C.)
1.18V (N.C.)

P501
N/C

T901

T902

FG5V

**-Vy TP
Marked on
board**

R640

C326

R639

FG15V

IC908

IC909

**VR901
VScan**

**VSC TP
Across R306**

Floating Gnd

Pins 1~4 (Va)
5 (n/c) 6~7 (Gnd)

P307

60H3 PANEL

60H3 VSC, -Vy ADJUSTMENTS

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes
   before making adjustments.
   Vs and Va adjustments complete.
2) Place unit into White Wash from the
   Customer's Menu for all adjustments.
**3) Be sure to use all adjustment values as
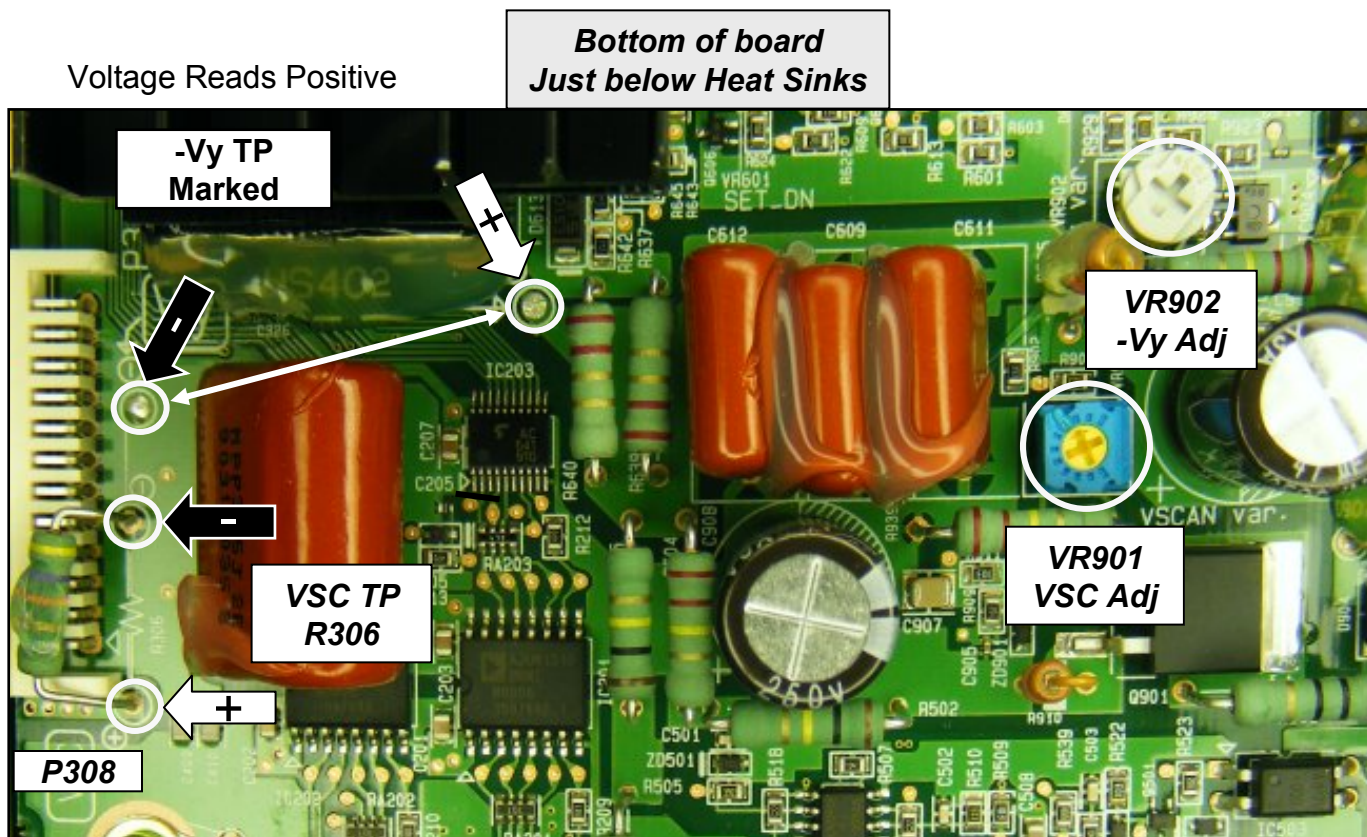   indicated on your panel's voltage label in
   the upper left of the panel.**

PROCEDURE: (See figure below for locations)

1) Adjust –Vy VR902. Measured across –Vy TPs (Marked on the board).
   Match your specific Panel's Voltage label ±1V.

2) Adjust VSC VR901. Measured across VSC TPs R306.
   Match your specific Panel's Voltage label ±1V.

Model : PDP 60H3###
All Voltages : DC 5.0V
Va:68   Vs:196
N.A. / -178 / 140 / N.A. / 100
Max Watt : 700 W (Full White)

-Vy Adj   VSC Adj
VR902   VR901

60H3 PANEL

Voltage Reads Positive

Bottom of board
Just below Heat Sinks

-Vy TP Marked

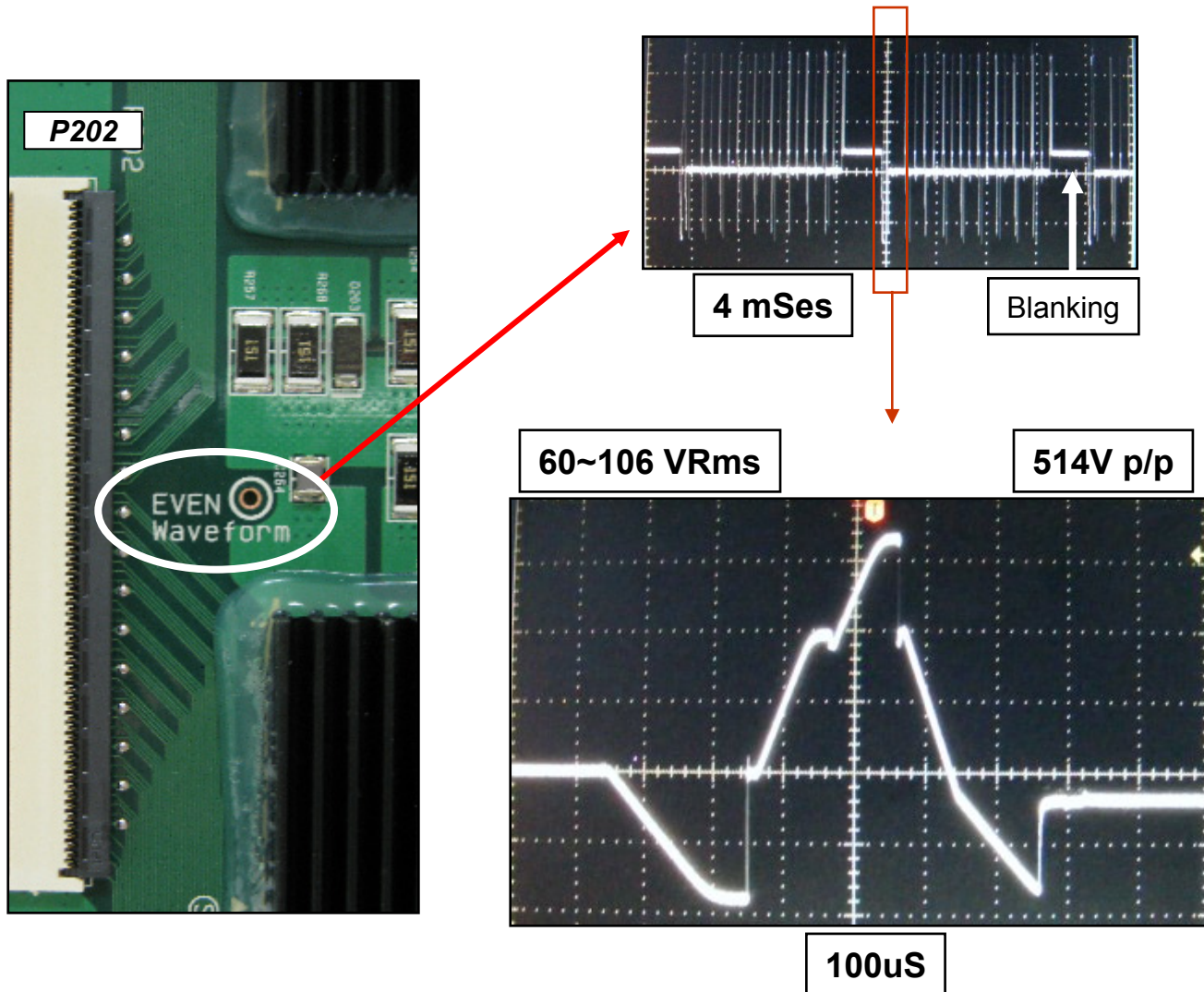VR902 -Vy Adj

VSC TP R306

VR901 VSC Adj

P308

60H3 Y Drive Waveform Test Point

The figure below shows a close-up image of the Y-Drive waveform test point on the Y-Drive Upper board. (TP Even Waveform).
There are other Test Points that can be used. The Odd Waveform TP is just about the lower Heat Sink on the Lower Y-Drive board.

Set-Up and Set-Down portions of the waveform are adjusted using either of these Test Points.

TP LOCATION UNDER 2nd HEAT SINK OF UPPER Y-DRIVE
(See next page for adjustment locations)

P202

EVEN Waveform

4 mSes

Blanking

60~106 VRms

514V p/p

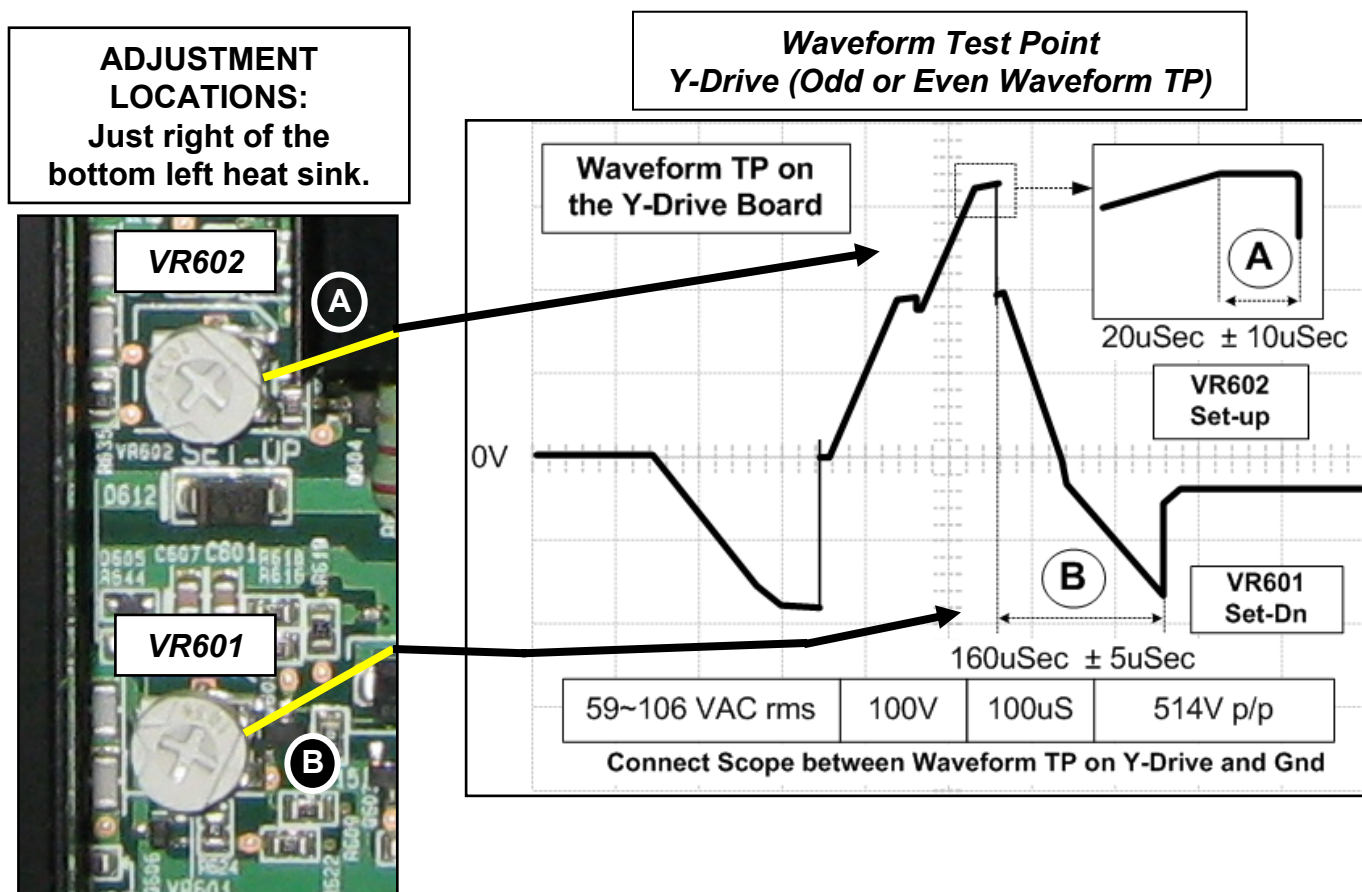100uS

60H3 PANEL

60H3 Y-DRIVE WAVEFORM ADJUSTMENTS

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
   Vs, Va, -Vy and VSC adjustments should be completed.
2) Place unit into White Wash from the Customer's Menu for all adjustments.

See figure below for adjustment locations.

ADJUSTMENT LOCATIONS
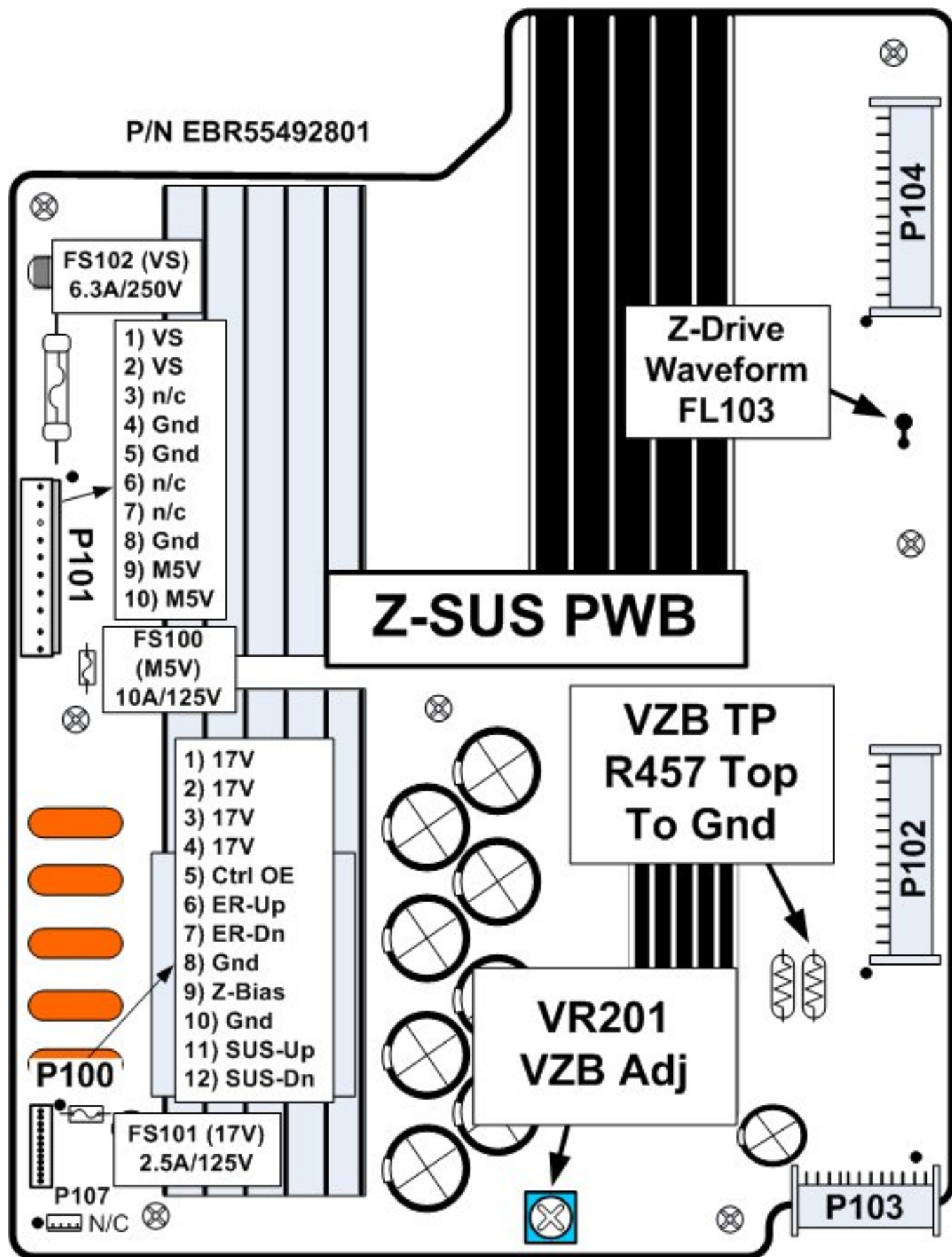**(See preceding page for Waveform TP locations)**

ADJUSTMENT LOCATIONS:
Just right of the bottom left heat sink.

VR602

Ⓐ

VR601

Ⓑ

Waveform Test Point
Y-Drive (Odd or Even Waveform TP)

Waveform TP on
the Y-Drive Board

0V

Ⓐ

20uSec ± 10uSec

VR602
Set-up

Ⓑ

VR601
Set-Dn

160uSec ± 5uSec

59~106 VAC rms	100V	100uS	514V p/p

Connect Scope between Waveform TP on Y-Drive and Gnd

SET-UP ADJUST:
1) Adjust **VR602** and set the **(A)** portion of the signal to match the waveform
   shown above. (20uSec ± 10uSec)

SET-DN ADJUST:
2) Adjust **VR601** and set the **(B)** time of the signal to match the waveform
   shown above. (160uSec ± 5uSec)

60H3 Z-SUS ADJUSTMENT POINTS

P/N EBR55492801

60H3 PANEL

FS102 (VS)
6.3A/250V

P101

1) VS
2) VS
3) n/c
4) Gnd
5) Gnd
6) n/c
7) n/c
8) Gnd
9) M5V
10) M5V

FS100
(M5V)
10A/125V

P104

Z-Drive
Waveform
FL103

Z-SUS PWB

1) 17V
2) 17V
3) 17V
4) 17V
5) Ctrl OE
6) ER-Up
7) ER-Dn
8) Gnd
9) Z-Bias
10) Gnd
11) SUS-Up
12) SUS-Dn

P100

VZB TP
R457 Top
To Gnd

P102

VR201
VZB Adj

FS101 (17V)
2.5A/125V

P107

N/C

P103

60H3 Z-SUS (Z-Bias) ADJUSTMENT:

Model : PDP 60H3###
All Voltages : DC 5.0V
Va:68   Vs:196
N.A. / -178 / 140 / N.A. / 100
Max Watt : 700 W (Full White)

VZB (Z-Bias) Adj
VR201

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.

2) Place unit into White Wash from the Customer's Menu for all adjustments.

3) Be sure to use all adjustment values as indicated on the panel voltage label in the upper right hand corner of the panel.

PROCEDURE: (See preceding page for locations)

1.   Place DC Volt meter on VZB TP (Top of R457 to Chassis Gnd).
2.   Adjust VZB (Z Bias) VR201 in accordance with your Panel's voltage label.

VR201 LOCATION
Bottom Center of Z-SUS Board
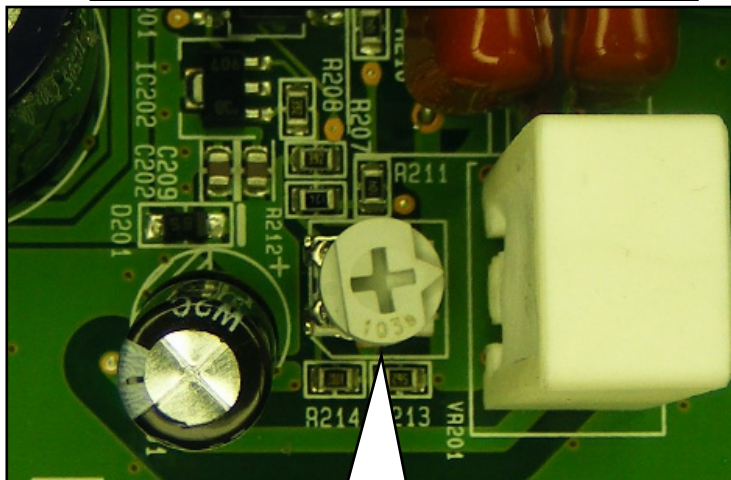
VZB (Z Bias)
VR201

VZB (Z-Bias) TP
Top Side R457
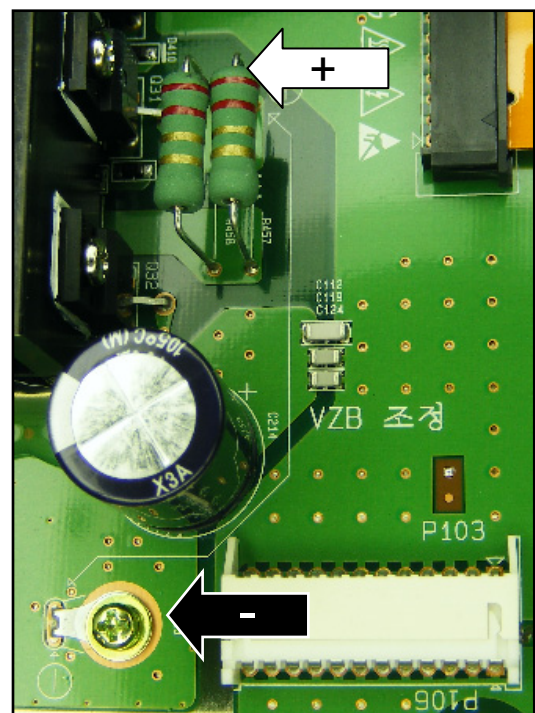
Measured from Chassis Ground

R457 LOCATION
Bottom Right of Z-SUS Board

60H3 PANEL

Intentionally left blank

60R1 PANEL

QUICK REFERENCE

ALIGNMENT SECTION

MODELS USING THE 60R1 PANEL

60PK950

60PK750

60PK560

60PK550

60PK540

60PK250

LG
Life's Good

Intentionally left blank

60R1 SMPS BOARD ADJUSTMENT POINTS

Set should be in "White Wash"

These two voltages are adjustable and should be adjusted to the correct values as indicated by your Panel's Voltage Label. Example shown on the right.

Always adjust "Highest to Lowest" voltages.
VS and VA adjustment resistors are shown in the drawing below.
They are located at the top Right of the board.

Model : PDP 60R1###
Voltage Setting: 5.0V/ Va:60/ Vs:202
N.A. / -180 / 150 / N.A. / 105
Max Watt : 550 W (Full White)

VA
VR551
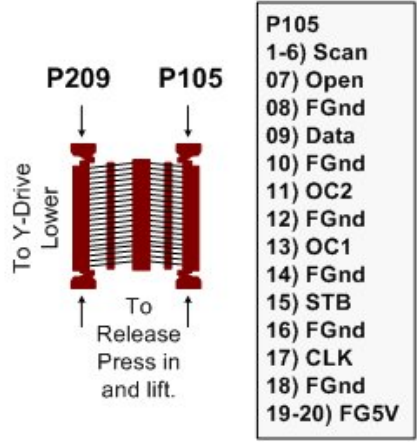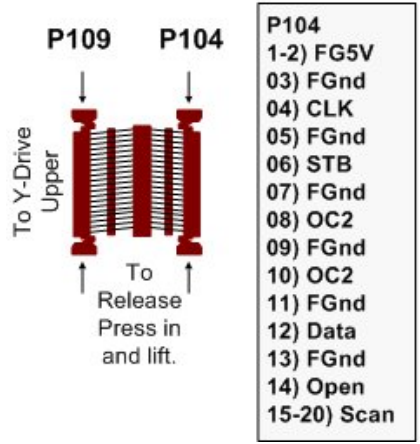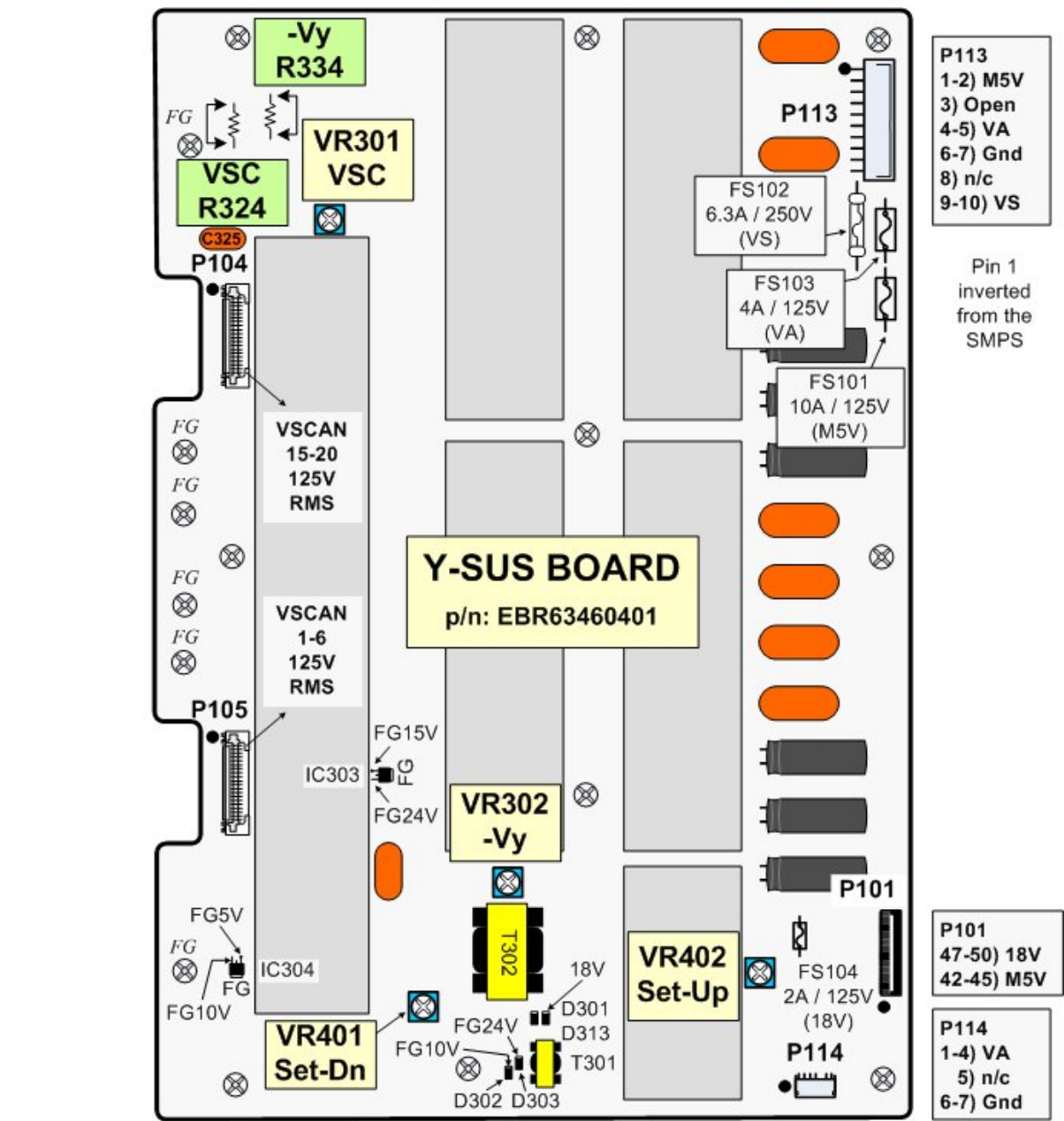
VS
VR901

1) **VS ADJUST:**
   Connect DVM to pin 1 or 2 of P811 or P812.
   Adjust VR901 until the voltage matches your panel's voltage label.

2) **VA ADJUST:**
   Connect DVM to pin 6 or 7 of P811 or P812.
   Adjust VR551 until the voltage matches your panel's voltage label.

60R1 Y-SUS BOARD ADJUSTMENT POINTS

-Vy
R334

FG

VR301
VSC

VSC
R324

C325

P104

VSCAN
15-20
125V
RMS

FG

FG

FG

FG

P105

VSCAN
1-6
125V
RMS

FG15V
FG
IC303
FG24V

FG5V
FG
IC304
FG
FG10V

VR401
Set-Dn

Y-SUS BOARD

p/n: EBR63460401

P113

FS102
6.3A / 250V
(VS)

FS103
4A / 125V
(VA)

FS101
10A / 125V
(M5V)

VR302
-Vy

T302

18V
D301
D313

FG24V
FG10V
T301

D302 D303

VR402
Set-Up

FS104
2A / 125V
(18V)

P101

P114

P113
1-2) M5V
3) Open
4-5) VA
6-7) Gnd
8) n/c
9-10) VS

Pin 1
inverted
from the
SMPS

P101
47-50) 18V
42-45) M5V

P114
1-4) VA
5) n/c
6-7) Gnd

60R1 PANEL

P109   P104

To Y-Drive Upper

To
Release
Press in
and lift.

P104
1-2) FG5V
03) FGnd
04) CLK
05) FGnd
06) STB
07) FGnd
08) OC2
09) FGnd
10) OC2
11) FGnd
12) Data
13) FGnd
14) Open
15-20) Scan

P209   P105

To Y-Drive Lower

To
Release
Press in
and lift.

P105
1-6) Scan
07) Open
08) FGnd
09) Data
10) FGnd
11) OC2
12) FGnd
13) OC1
14) FGnd
15) STB
16) FGnd
17) CLK
18) FGnd
19-20) FG5V

60R1 VSC, -Vy ADJUSTMENTS

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes
   before making adjustments.
   Vs and Va adjustments complete.
2) Place unit into White Wash from the
   Customer's Menu for all adjustments.
**3) Be sure to use all adjustment values as
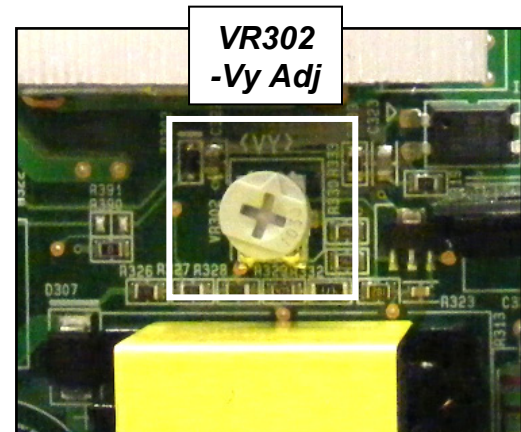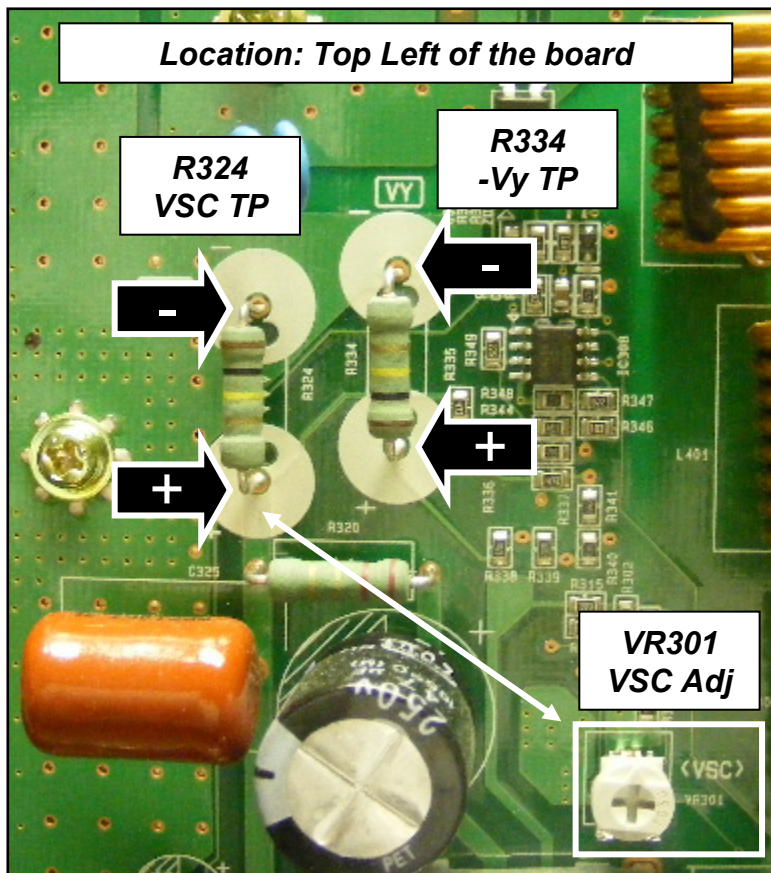   indicated on your panel's voltage label in
   the upper left of the panel.**

PROCEDURE: (See figure below for locations)

1) Adjust –Vy VR302. Measured across –Vy TP R334.
   Match your specific Panel's Voltage label ±1V.

2) Adjust VSC VR301. Measured across VSC TPs R324.
   Match your specific Panel's Voltage label ±1V.

   Voltage Reads Positive

Model : PDP 60R1###
Voltage Setting: 5.0V/ Va:60/ Vs:202
N.A. / -180 / 150 / N.A. / 105
Max Watt : 550 W (Full White)

-Vy   *VSC*

Location: Top Left of the board

R324 VSC TP

R334 -Vy TP

VR301 VSC Adj

VR302 -Vy Adj

*Location:
Bottom Center of board
Just below Heat Sink*

60R1 Y Drive Waveform Test Point

The figure below shows a close-up image of the Y-Drive waveform test point on the Y-Drive Upper board. (Waveform TP).
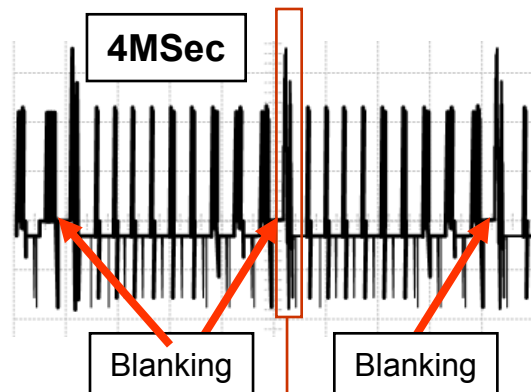There is another on the Lower Y-Drive board.

Set-Up and Set-Down portions of the waveform are adjusted using either of these Test Points.

TP LOCATION UNDER 2nd HEAT SINK OF UPPER Y-DRIVE
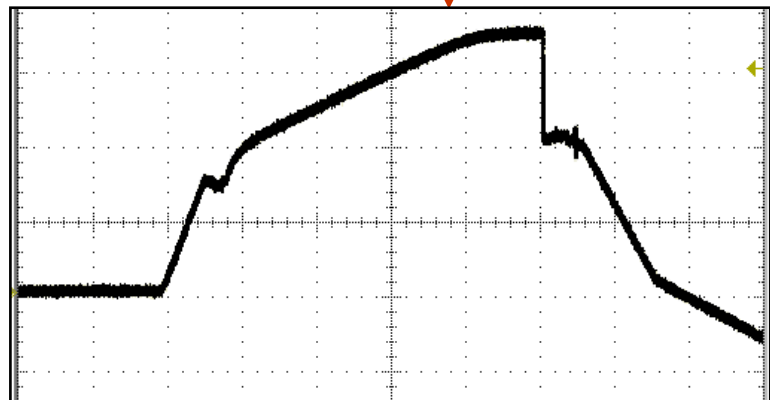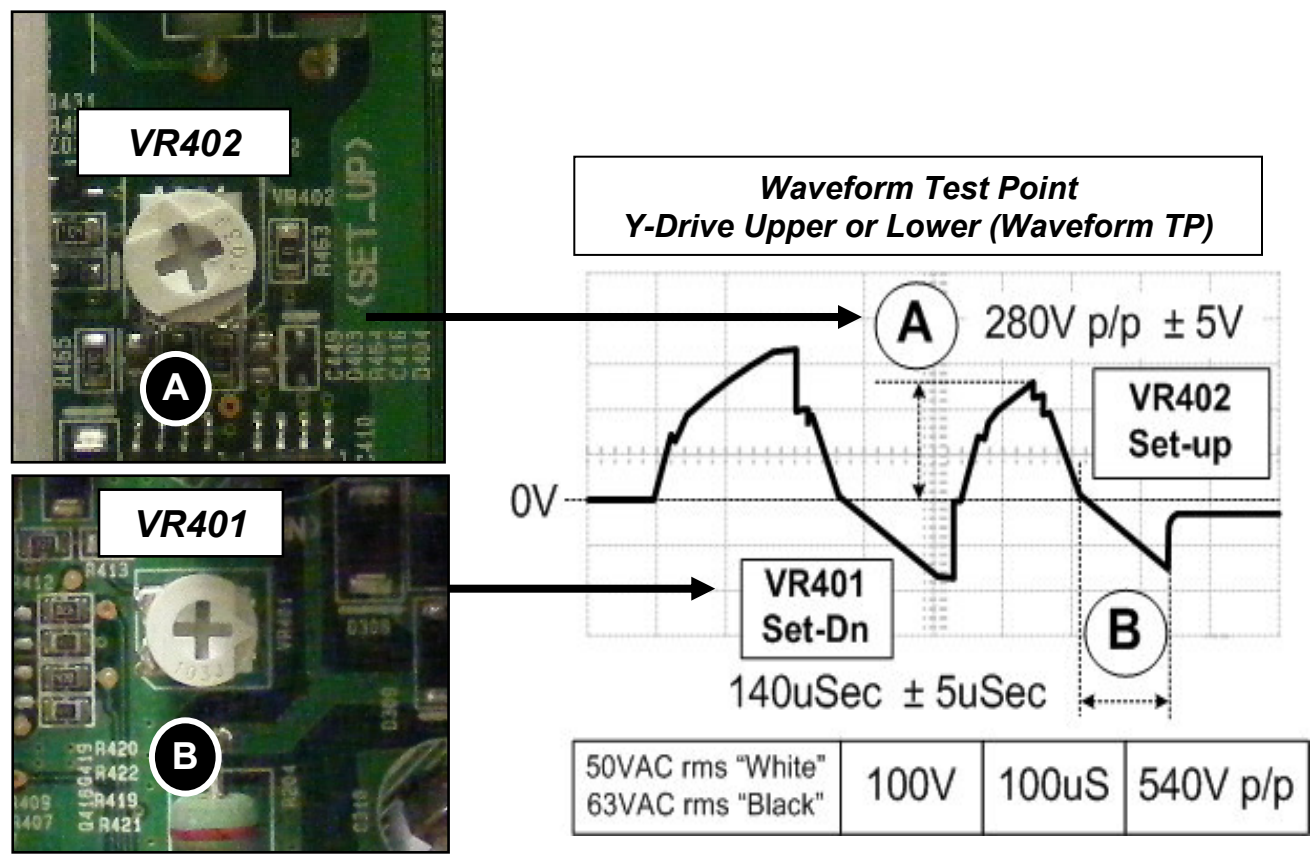### (See next page for adjustment locations)

4MSec

Blanking   Blanking
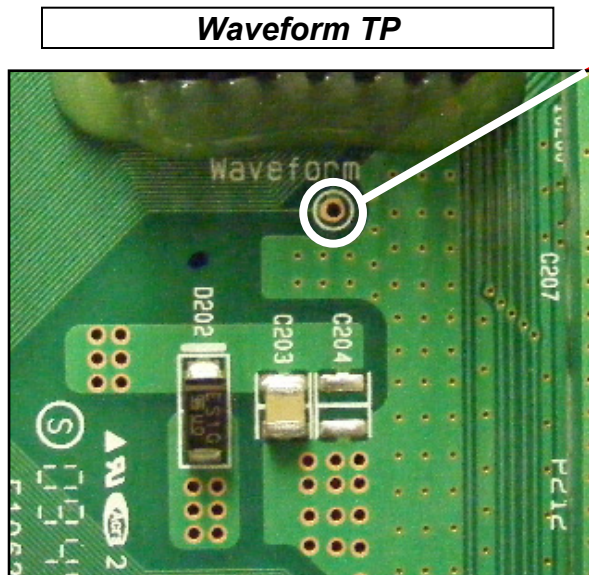
Waveform TP

Upper or Lower Y-Drive Board

63~74 VRms   **540V p/p**

40uSec

60R1 PANEL

60R1 Y-DRIVE WAVEFORM ADJUSTMENTS

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
   Vs, Va, -Vy and VSC adjustments should be completed.
2) Place unit into **White Wash** from the Customer's Menu for all adjustments.

See figure below for adjustment locations.

ADJUSTMENT LOCATIONS
(See 3 pages back for Waveform TP locations)

60R1 PANEL

VR402

(A)

VR401

(B)

ADJUSTMENT LOCATIONS:
   Bottom of the board.

Waveform Test Point
Y-Drive Upper or Lower (Waveform TP)

(A) 280V p/p ± 5V

VR402 Set-up

0V

VR401 Set-Dn

(B)

140uSec ± 5uSec

50VAC rms "White" 63VAC rms "Black"	100V	100uS	540V p/p

SET-UP ADJUST:
1) Adjust **VR402** and set the **(A)** portion of the signal to match the waveform shown above. (280V p/p ± 5V)

SET-DN ADJUST:
2) Adjust **VR401** and set the **(B)** time of the signal to match the waveform shown above. (140uSec ± 5uSec)

60R1 Z-SUS ADJUSTMENT POINTS

FS103
6.3A / 250V
(VS)

P102

VZB
R274

VR204
VZB

Z-SUS BOARD

p/n: EBR63450501

Z-Bias
Waveform

50V RMS

FL200

P105

P103

P106

P107
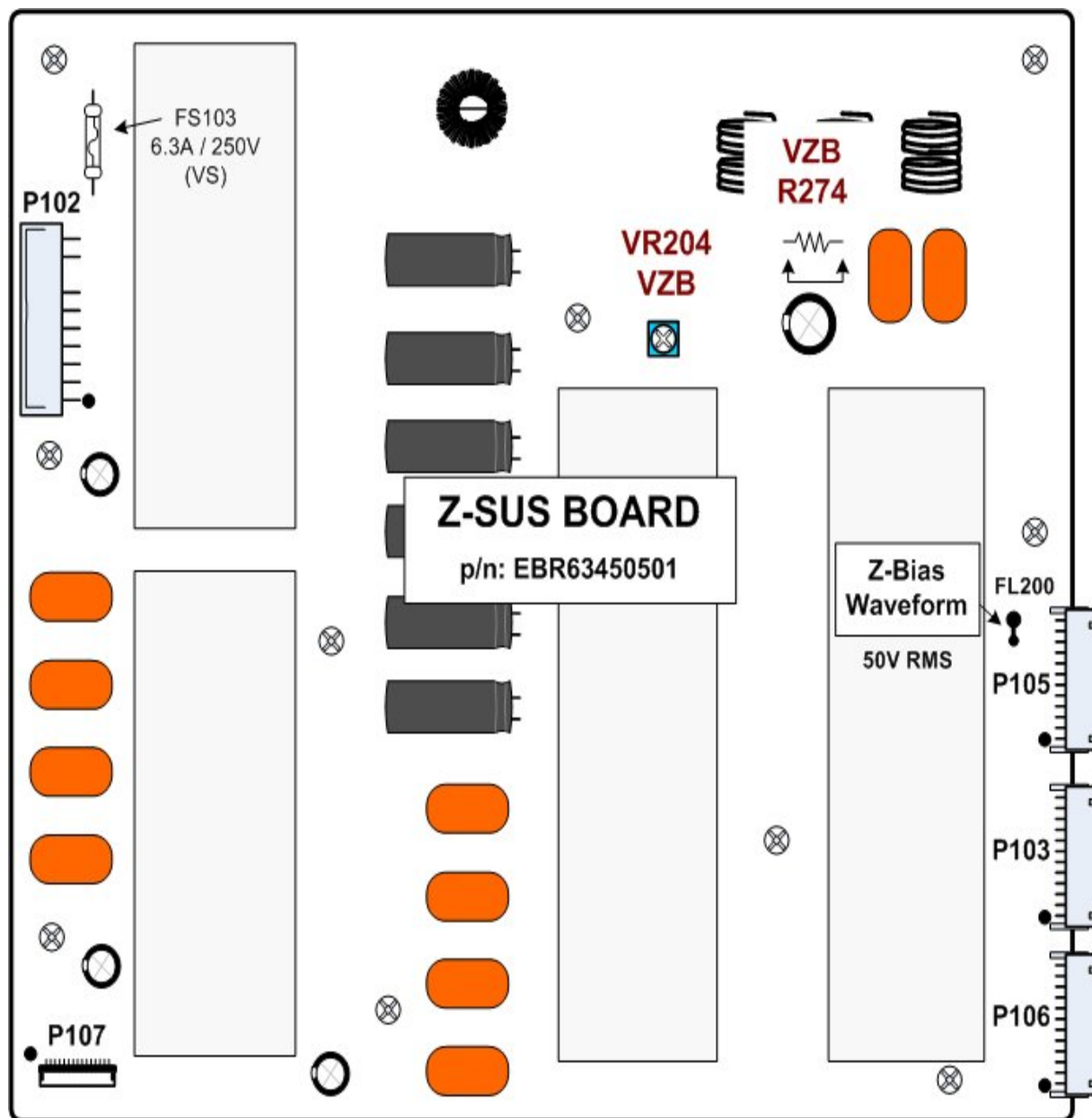
**60R1 PANEL**

60R1 Z-SUS (Z-Bias) ADJUSTMENT:

PREPARATION:

Model : PDP 60R1###
Voltage Setting: 5.0V/ Va:60/ Vs:202
N.A. / -180 / 150 / N.A. / 105
Max Watt : 550 W (Full White)

VZB (Z Bias)

1) Pre-Heat unit for at least 10 Minutes before making adjustments.

2) Place unit into White Wash from the Customer's Menu for all adjustments.

3) Be sure to use all adjustment values as indicated on the panel voltage label in the upper right hand corner of the panel.

PROCEDURE: (See preceding page for locations)

1. **Place DC Volt meter on VZB TP (Across R275).**
2. **Adjust VZB (Z Bias) VR204 in accordance with your Panel's voltage label.**

Top Right of Z-SUS Board

VZB (Z-Bias) TP
Top Side R275

VZB (Z Bias)
VR204

NEGATIVE

POSITIVE
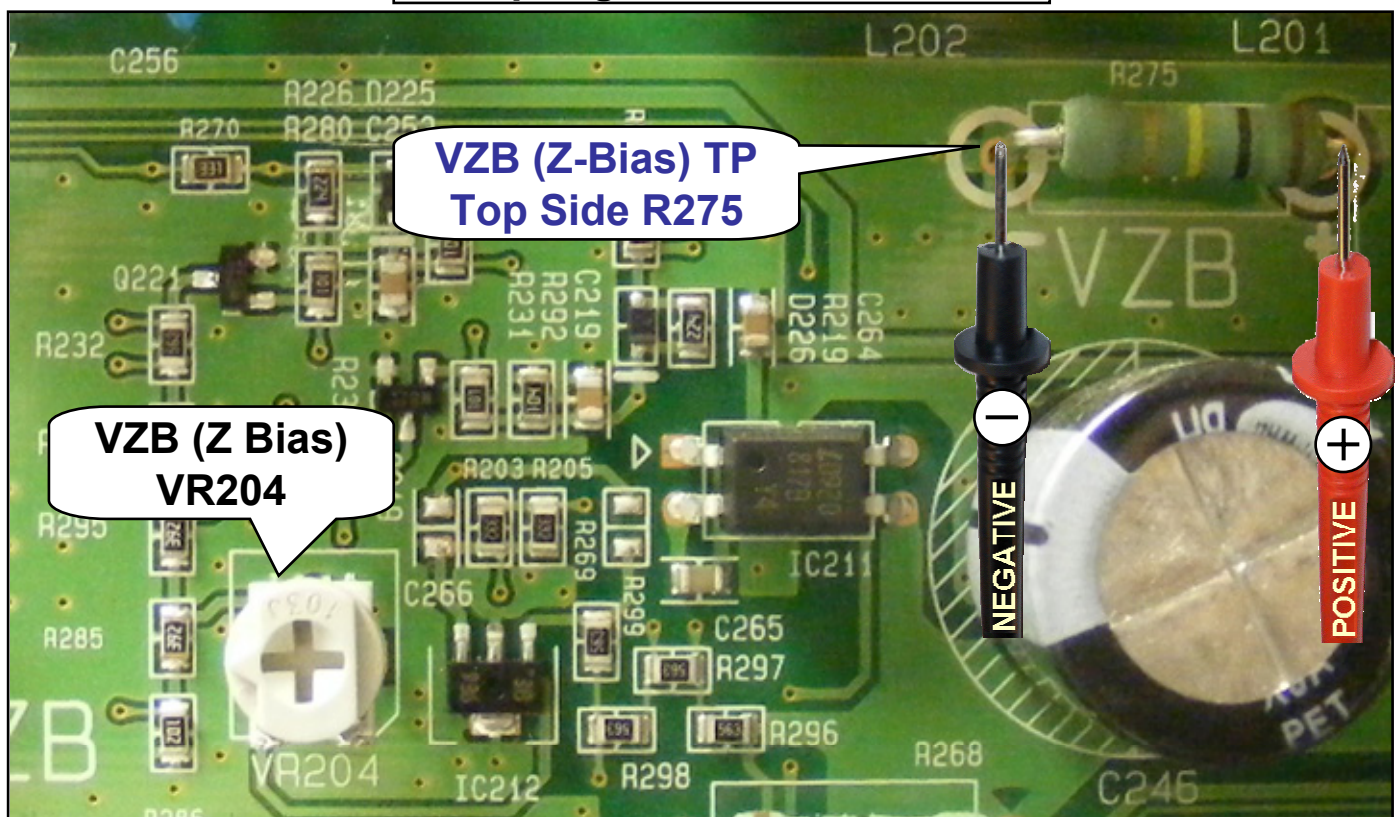
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60X6 PANEL

QUICK REFERENCE

ALIGNMENT SECTION

MODELS USING THE 60X6 PANEL

60PC1DAA
60PT1DRNA
60PY2DAB
60PY2DR1
60PY2DRNA
60PY2RMC
60PY2RTB
60PY2RZB
60PZ9MATA
60PZ9MTA

LG

Life's Good

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60X6 SMPS PWBs ADJUSTMENT POINTS

These two voltages are adjustable and should be adjusted to the
correct values as indicated by the panel label. Example shown below.
Always adjust "Highest to Lowest" voltages.
They are located at the top left of the board.
VR951 is the VS adjustment pot.
VR901 is the VA adjustment pot.

Set should be in "**Full White Raster**"

Model : PDP 60X6###
All Voltages : DC 5.0V
Va:60   Vs:193
250 / -65 / 110 / N.A. / 170
Max Watt : 570 W (Full White)

VA   VS

VS
VS
VS
Gnd
Gnd
Gnd
VA
VA

P8011

P8012

VR8401
VA Adj

VR8501
VS Adj

5VDC
VR8802

SMPS MAIN

P800B

VR8801
3.4V Adj

P101B

P803B
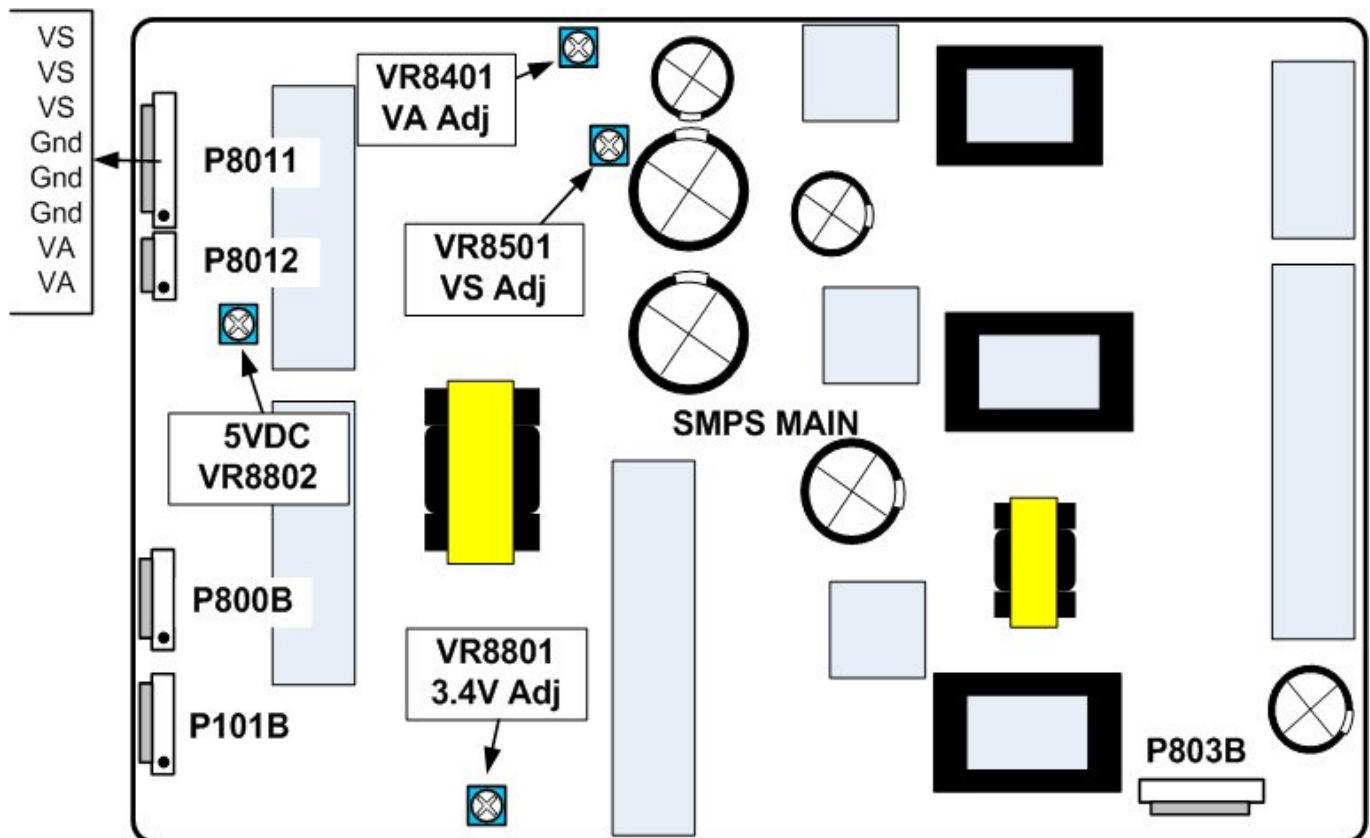
60X6 SMPS PWBs ADJUSTMENT POINTS

Set should be in "Full White Raster"

See previous page for locations.

NOTE: If either or both of the adjustment pots for 5V and 3.4V at covered in silicon, simply check the voltage to make sure its correct in relationship to your specific panel's voltage label.

1) **VCC 5V ADJUST:** Connect DVM to VCC output pin.
 Adjust VR8802 until the voltage matches the panel's voltage label.

2) **VCC 3.4V ADJUST:** Connect DVM to VCC output pin.
 Adjust VR8801 until the voltage matches the panel's voltage label.

3) **VS ADJUST:** Connect DVM to pin 6, 7 or 8 of P8011. Adjust VR8501 until the voltage matches the panel's voltage label.

4) **VA ADJUST:** Connect DVM to pin 1 or 2 of P8011.
Adjust VR8401 until the voltage matches the panel's voltage label.

60X6 Y-SUS PWB ADJUSTMENT POINTS

60X6 PANEL

Model : PDP 60X6###
All Voltages : DC 5.0V
Va:60   Vs:193
250 / -65 / 110 / N.A. / 170
Max Watt : 570 W (Full White)

V Set-Up   -Vy   VSC

B41
Waveform

P8

FG

P5

VR4
-Vy Adj

R60

R168

R60
VSC TP

VR3
VSC Adj

R168
-Vy TP

P1

P2

P3

P4

VR2
V-Set-dn

SCAN

Y-SUS PWB

VR20
Vset-Up

V Set-Up TP
R51 / R192

VR1
Ramp-Up

P10

P7
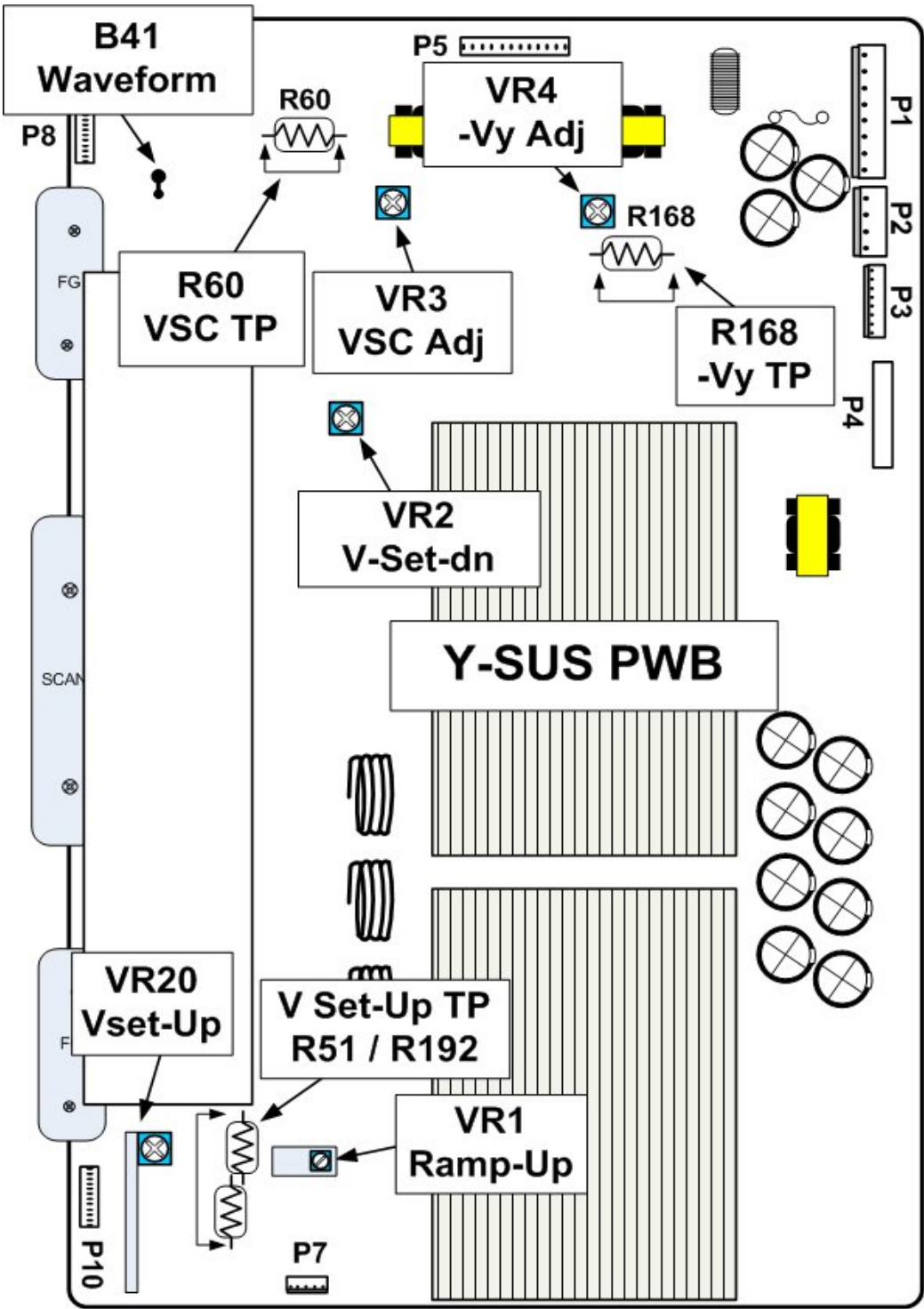
60X6 Y-SUS BOARD ADJUSTMENTS

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
2) Place unit into White Wash from the Customer's Menu for all adjustments.
3) Be sure to use all adjustment values as indicated on the panel voltage label on the panel.

Model : PDP 60X6###
All Voltages : DC 5.0V
Va:60   Vs:193
250 / -65 / 110 / N.A. / 170
Max Watt : 570 W (Full White)

V Set-Up   -Vy   VSC

PROCEDURE: (See figures below for locations)

1) **Adjust VSC using VR3.**
Measured across **R60**.
Match Panel Voltage label ±1V.

VSC across R60

VSC ADJ VR3
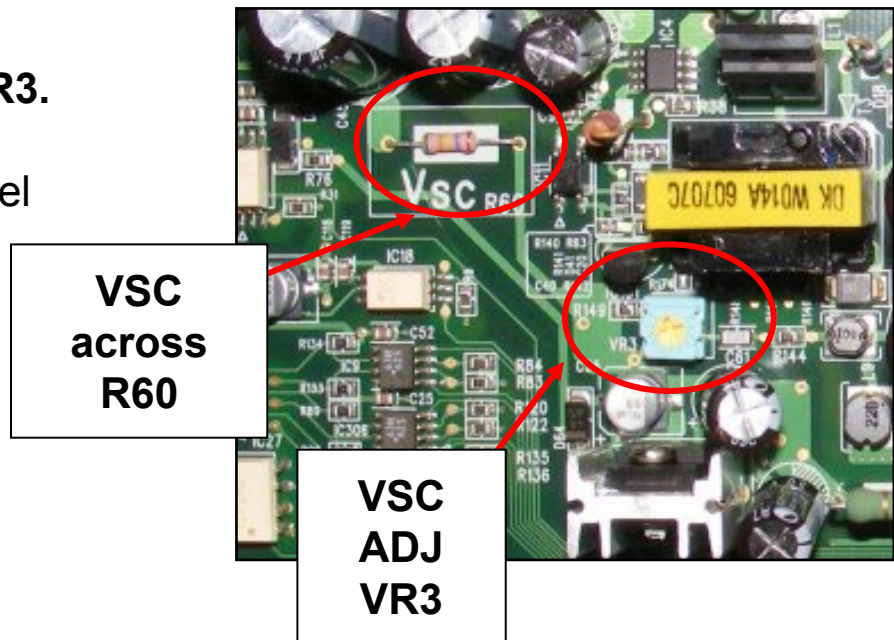
2) **Adjust –Vy using VR4.**
Measured across **R168**.
Match Panel Voltage label ±1V.

-Vy ADJ VR4

-Vy TP R168

60X6 PANEL
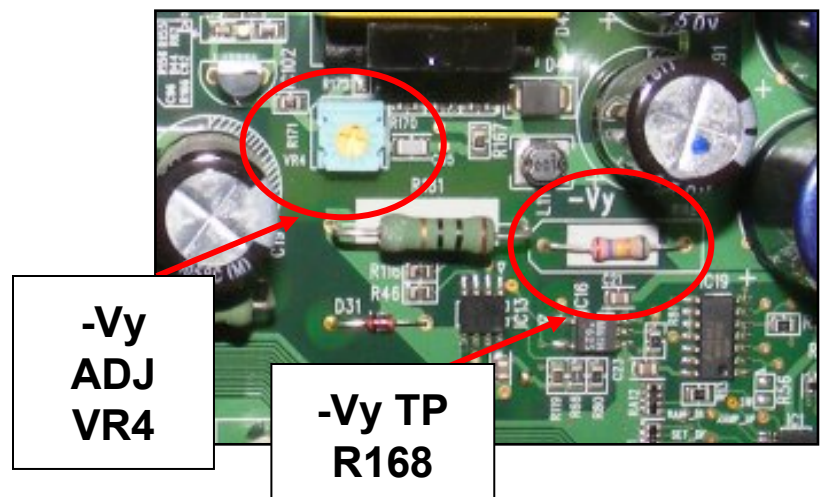
60X6 VSet-Up DC Voltage Adjustment

Model : PDP 60X6###
All Voltages : DC 5.0V
Va:60   Vs:193
250 / -65 / 110 / N.A. / 170
Max Watt : 570 W (Full White)

V Set-Up

Adjust VR20 while reading from top of R51 to bottom of R192. Adjust and match the voltage label.

Vset-Up adjust

R51 top
R192 bottom
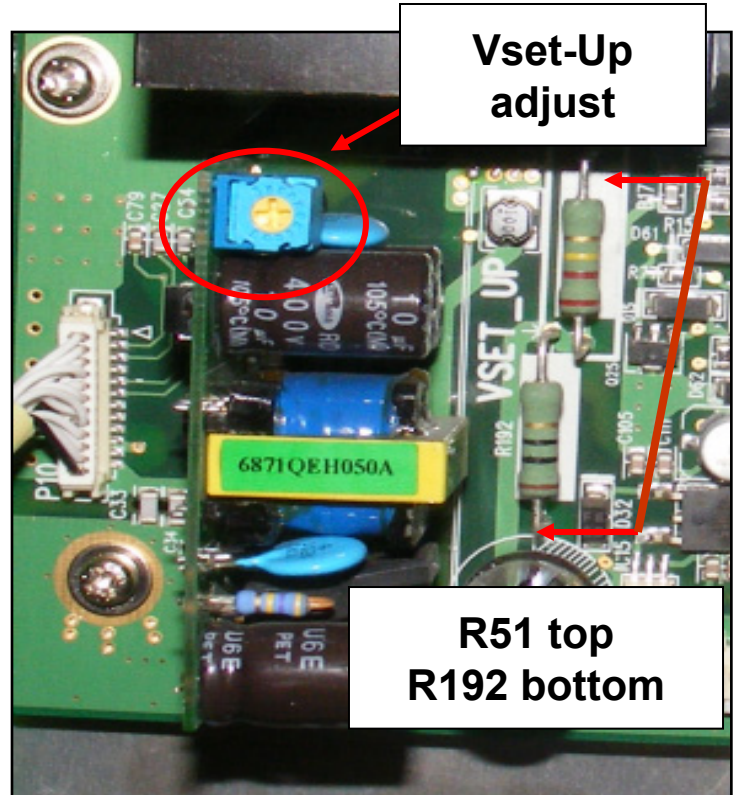
60X6 Y Drive Waveform Test Point

Two pages back shows the Y-SUS PWB. The Figure to the right shows a close-up image of the Y-Drive waveform test point **B41** on the Y-SUS PWB.
LOCATION: Upper Left hand side of the Y-SUS PWB.

B41
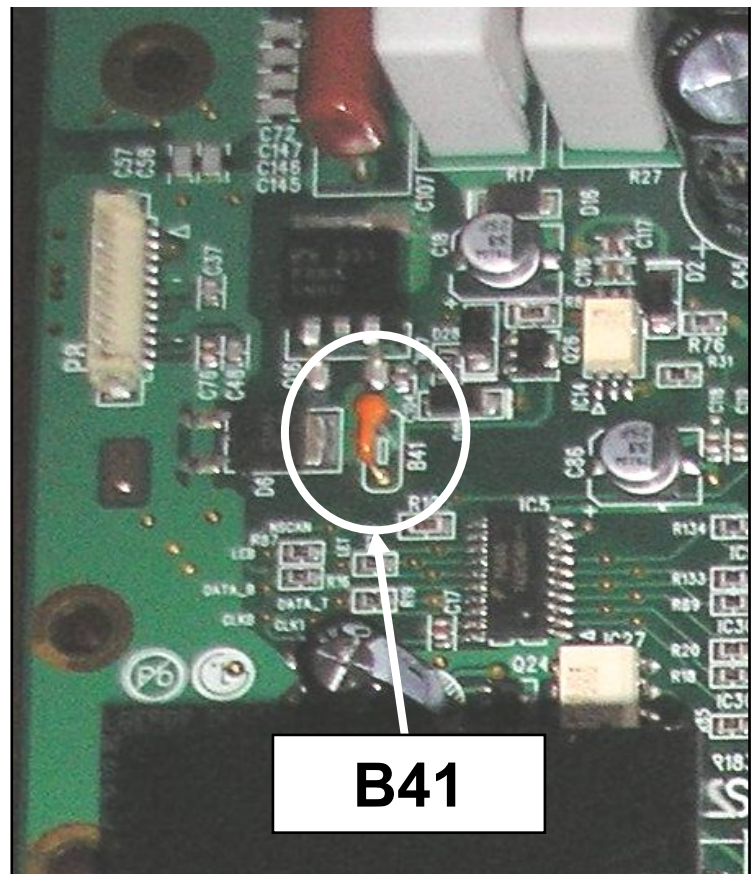
60X6 Y-Drive Waveform Adjustment

The adjustments Va, Vs, -Vy and VSN should have been completed.
Using a Full White Raster, adjust the Set-up (Ramp) and
Set-dn section of the Y-Drive waveform.
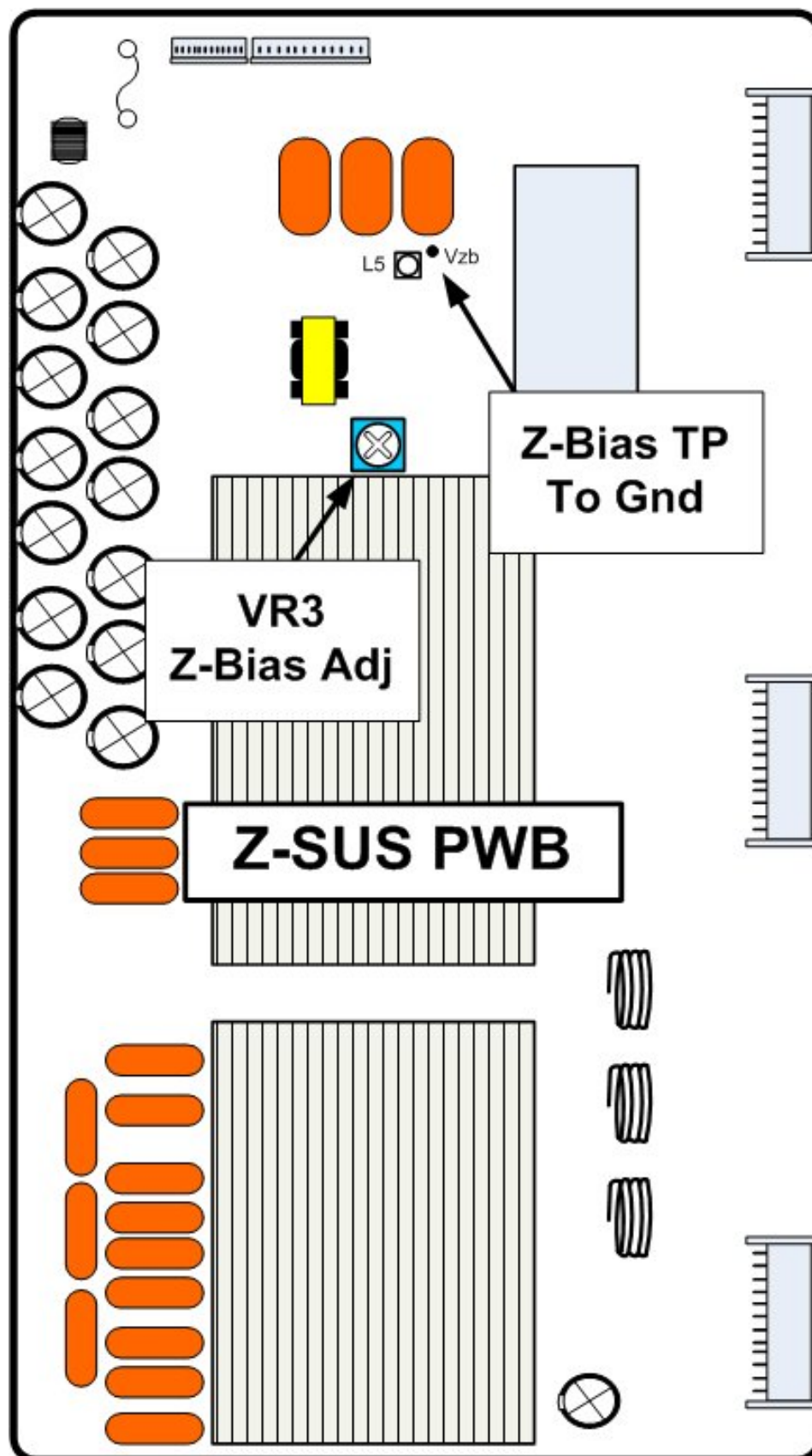
Attach the Oscilloscope to the "Waveform" TP (**B41**) on the
Y-SUS Board.

Ramp-Up VR1: Adjust **VR1** while observing area (**A**) and set to
220V ± 5V.

Set-Dn VR2: Adjust **VR2** while observing area (**B**) and set to
108uSec ± 5uSec.

Connect Scope to Waveform
TP (B41) on Y-Drive PWB

| | V Set-Up (Ramp-Up) VR1 |
A 220V
± 5V

V-Set-dn
VR2

B

108 ± 5us

| Scope Settings | 100V | 40uS |

60X6 Z-SUS PWB ADJUSTMENT POINTS

60X6 PANEL

L5 Vzb

Z-Bias TP
To Gnd

VR3
Z-Bias Adj
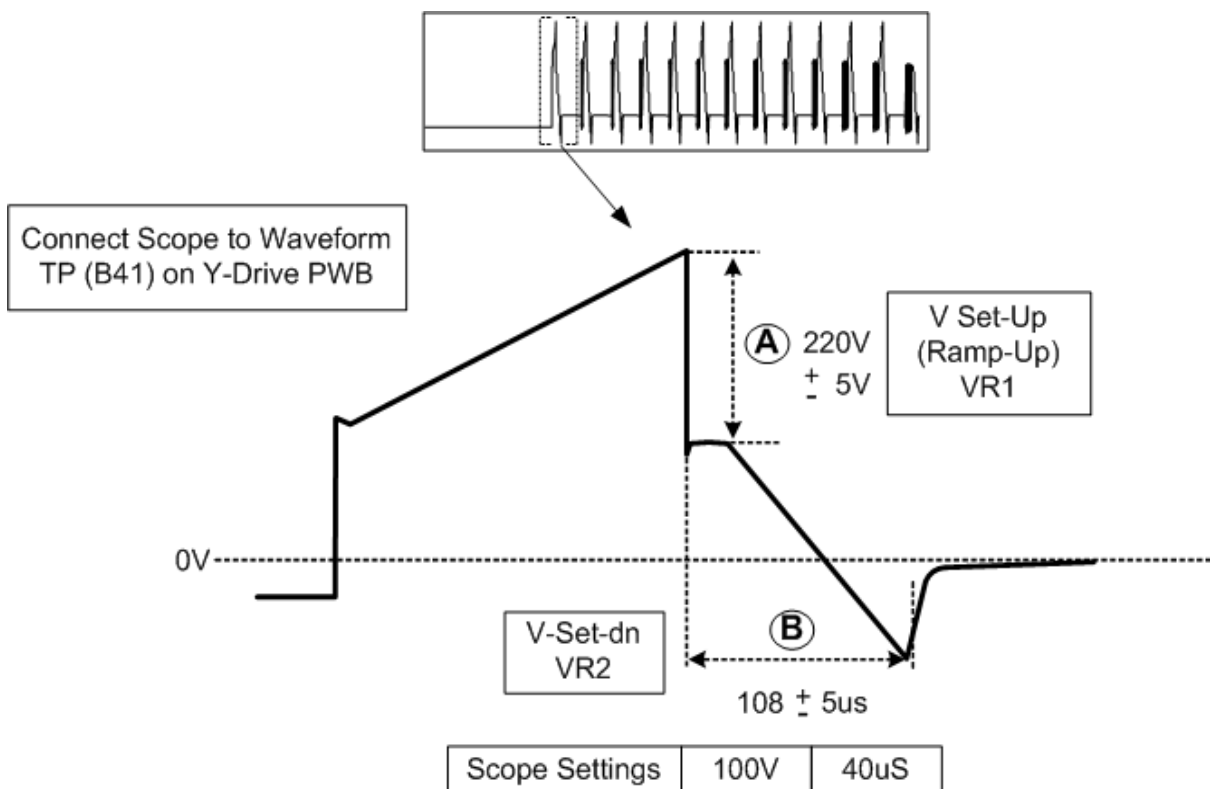
Z-SUS PWB

60X6 Z-SUS (Z-Bias) ADJUSTMENT:

PREPARATION:

(1) Pre-Heat unit for at least 10 Minutes before making adjustments.

(2) Place unit into White Wash from the Customer's Menu for all adjustments.

**(3) Be sure to use all adjustment values as indicated on the panel's voltage label. See sample above.**

Model : PDP 60X6###
All Voltages : DC 5.0V
Va:60   Vs:193
250 / -65 / 110 / N.A. / 170
Max Watt : 570 W (Full White)

Zbias

PROCEDURE: (See preceding page for locations)

1. Place DC Volt meter on **VZB TP** (Top center of board. Vzb silk screened on the board). Read from Chassis ground.

2. Adjust VZB (Z Bias) **VR3** in accordance with the Panel's voltage label.

Z-Bias TP
Labeled just right of L5

Z-Bias ADJ VR3
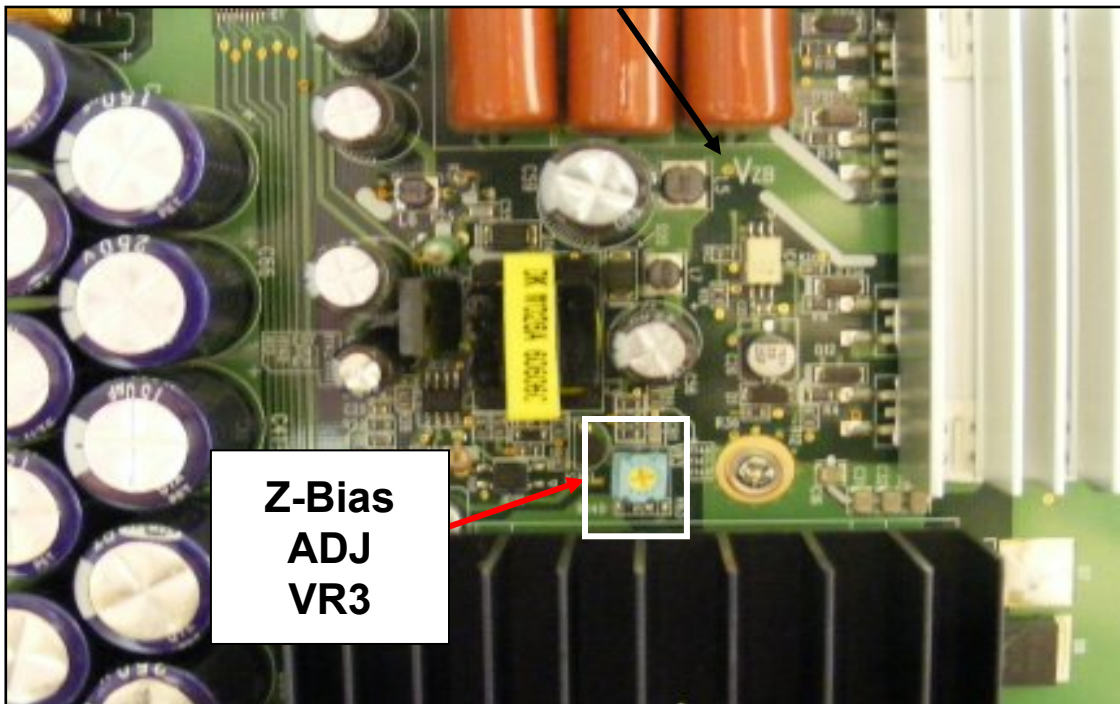
60X7 PANEL

QUICK REFERENCE

ALIGNMENT SECTION

MODELS USING THE 60X7 PANEL

60PB4DA / DR / DT

LG

Life's Good

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60X7 SMPS PWBs ADJUSTMENT POINTS

Set should be in "Full White Raster"

These two voltages are adjustable and should be adjusted to the correct values as indicated by the panel label.

Example shown on the right.

Always adjust "Highest to Lowest" voltages.

VS and VA adjustment resistors are shown in the drawing below.

They are located at the top left of the board.

VR951 is the VS adjustment pot.

VR901 is the VA adjustment pot.

```
Model : PDP 60X7 ####
All Voltage : DC 5V
Va : 60V      Vs : 190V
N.A. / -190 / 115 / N.A. / 100
Max Watt : 570 W ( Full White )
```
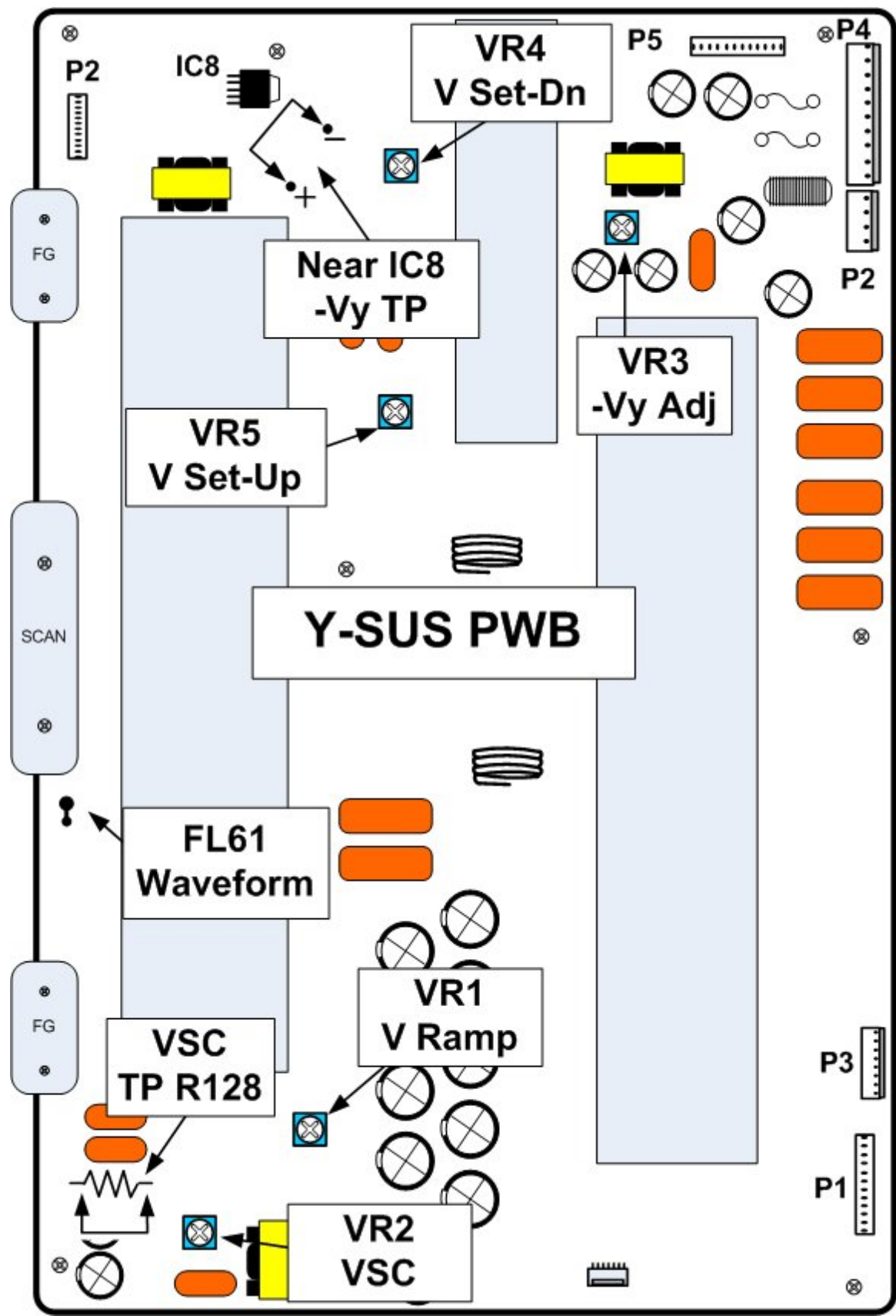VA   VS

ADJUSTMENT PROCEDURE:

1) **VS ADJUST:** Connect DVM to pin 8, 9 or 10 of P812. Adjust VR951 until the voltage matches the panel's voltage label.

2) **VA ADJUST:** Connect DVM to pin 1 or 2 of P812. Adjust VR901 until the voltage matches the panel's voltage label.

60X7P Y-SUS PWB ADJUSTMENT POINTS

VR4 V Set-Dn

Near IC8 -Vy TP

VR3 -Vy Adj

VR5 V Set-Up

Y-SUS PWB

FL61 Waveform

VR1 V Ramp

VSC TP R128

VR2 VSC
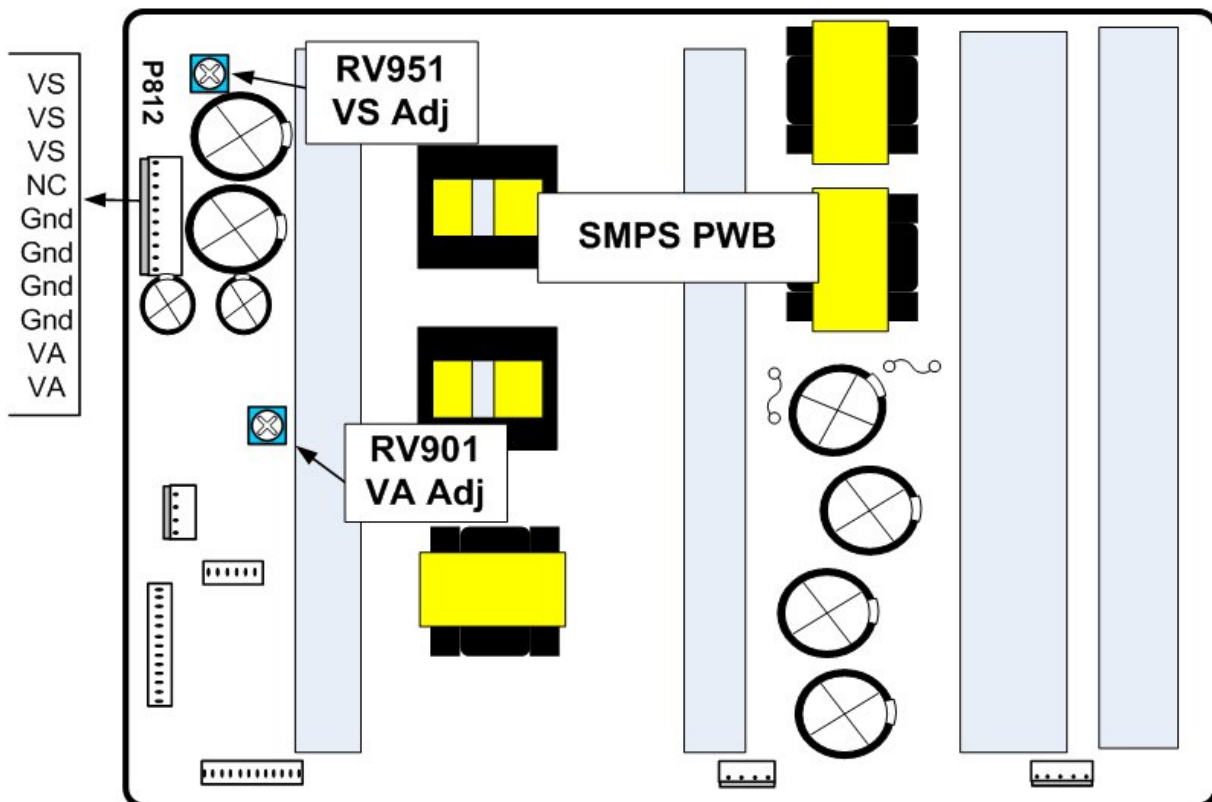
60X7 PANEL

60X7 VSC, -Vy ADJUSTMENTS

PREPARATION:

```
Model : PDP 60X7 ####
All Voltage : DC 5V
Va : 60V        Vs : 190V
N.A. / -190 / 115 / N.A. / 100
Max Watt : 570 W ( Full White )
        -Vy        VSC
```
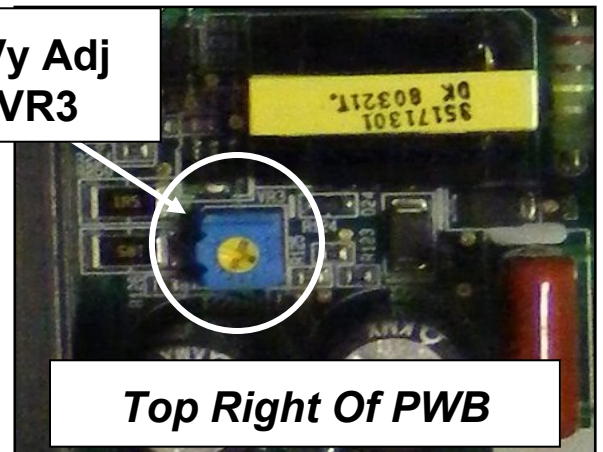
1) Pre-Heat unit for at least 10 Minutes
   before making adjustments.
   Vs and Va adjustments complete.
2) Place unit into White Wash from the
   Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as
   indicated on your specific panel's voltage
   label in the upper right of the panel.**

PROCEDURE: (See figure below for locations)

1) Adjust –Vy (VR3). Measured across –Vy TPs (Near IC8).
   Match your specific Panel's Voltage label ±1V.

2) Adjust VSC (VR2). Measured across VSC TP R128.
   Match your specific Panel's Voltage label ±1V.
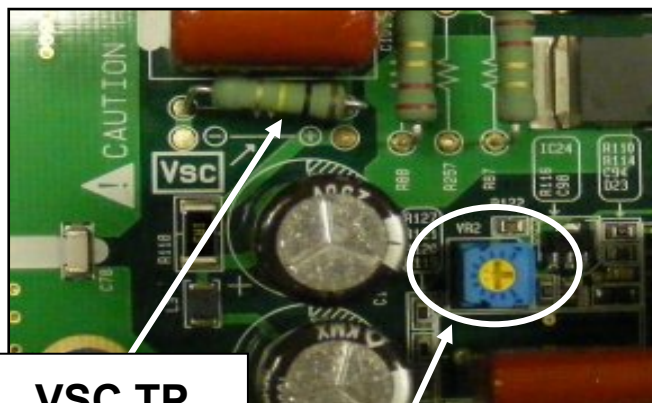
**-Vy Adj
VR3**

**VSC TP
R128**

**VSC Adj
VR2**

Top Right Of PWB

*Lower Left Side
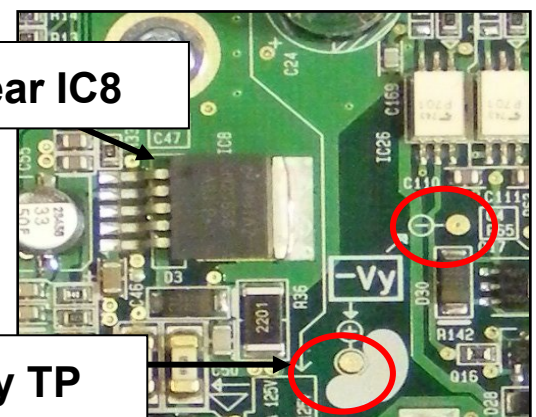Of PWB*

Near IC8

-Vy TP

Top Center Of PWB

60X7 Y Drive Waveform Test Point

Two pages back show the Y-SUS PWB

Figure Below:
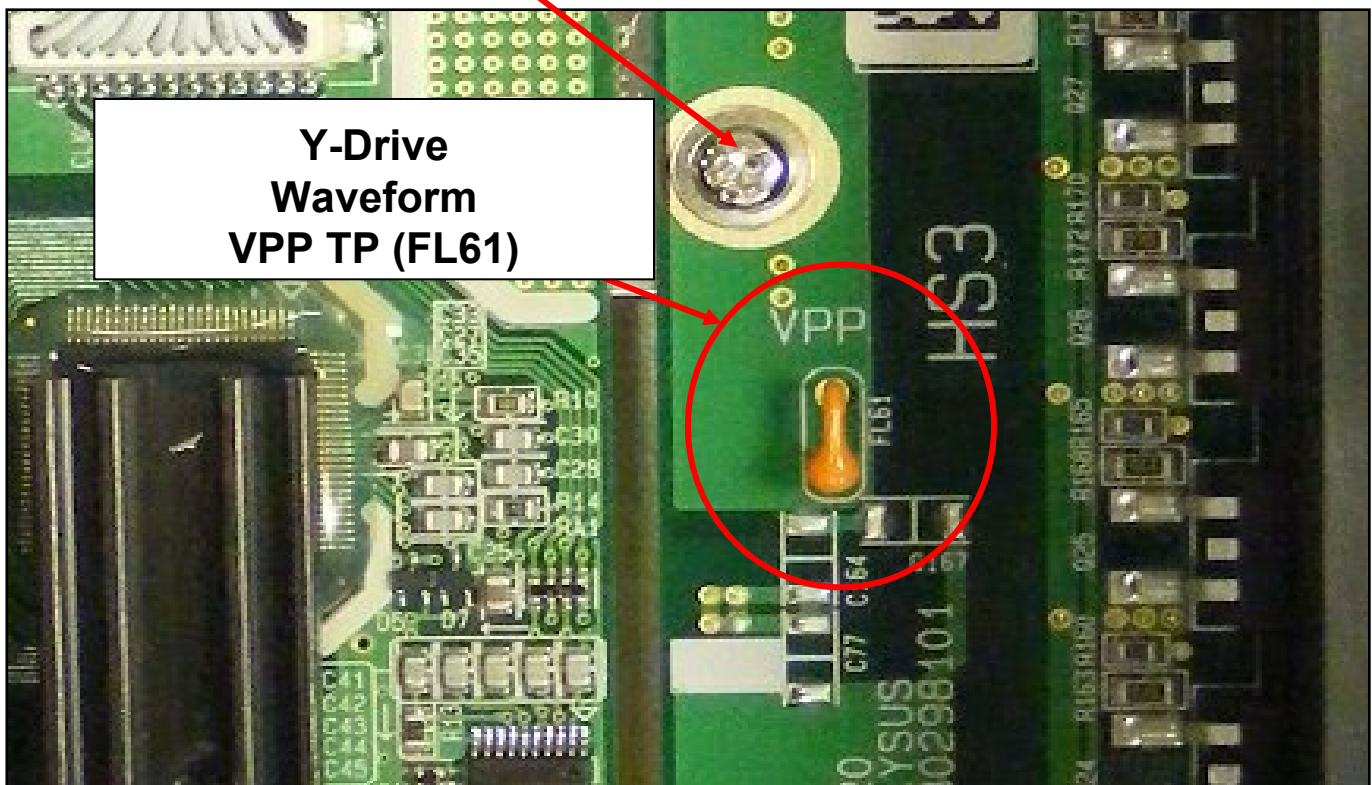Shows a close-up image of the Y-Drive waveform test point on the Y-SUS PWB. TP FL61

Ramp (Ramp-Up), Set-Down and V Set-Up portions of the waveform are adjusted using this TP.

TP LOCATION
(See next page for adjustment locations)

Scan Signal

**Y-Drive
Waveform
VPP TP (FL61)**

**Y-Drive
Lower PWB**

**Y-SUS PWB
Center Left**

60X7 PANEL

60X7 Y-DRIVE WAVEFORM ADJUSTMENTS

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes
   before making adjustments.
   Vs, Va, -Vy and VSC adjustments should be completed.
2) Place unit into White Wash from the
   Customer's Menu for all adjustments.
**3) Be sure to use all adjustment values as
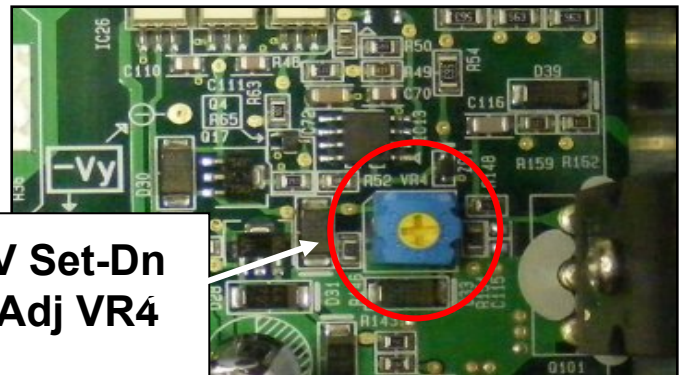   indicated on the panel voltage label on the panel.**
See figure below for Y-Drive waveform adjustment locations
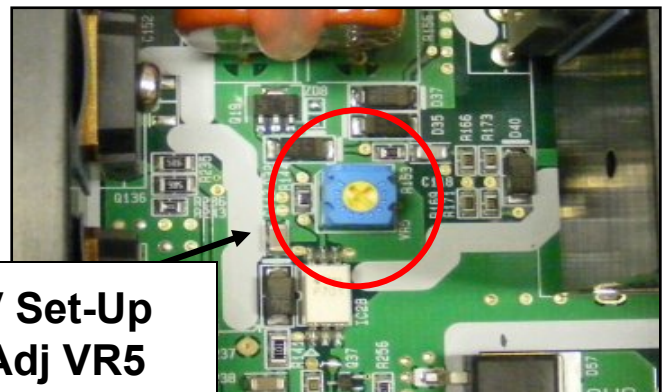
See Next page for adjustment specifications.

ADJUSTMENT LOCATIONS
(See preceding page for TP location)
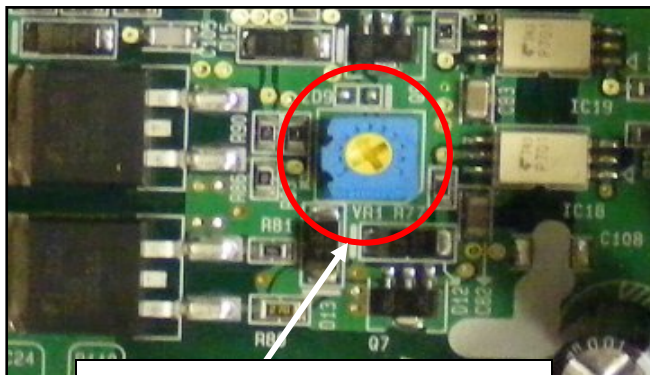
Ramp Up ADJ VR1

V Set-Dn Adj VR4

V Set-Up Adj VR5

Lower Left Side Of PWB

60X7 PANEL

60X7 Y-Drive Waveform Adjustment

Using a Full White Raster, adjust the Y-Set-up, Ramp and Set-dn section of the Y-Drive waveform.
VS, VA, -Vy and VSC should have been adjusted.

Oscilloscope TP on the "Y Drive Waveform" VPP TP (FL61) on the Y-SUS PWB.
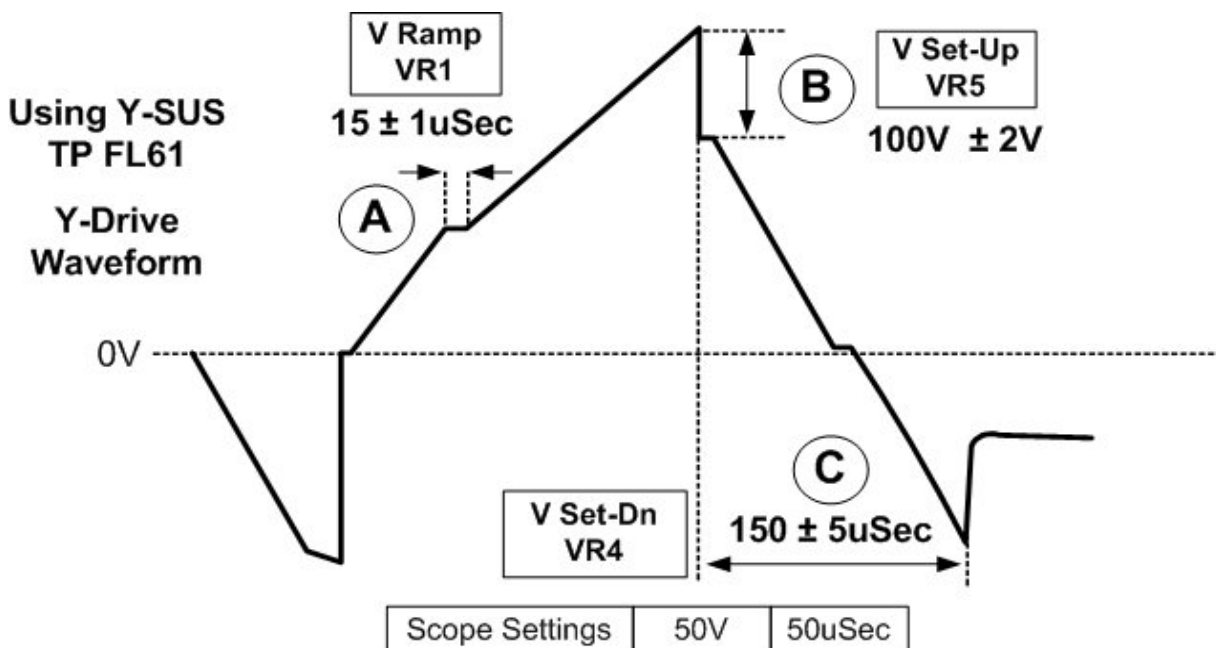
V RAMP ADJUSTMENT:
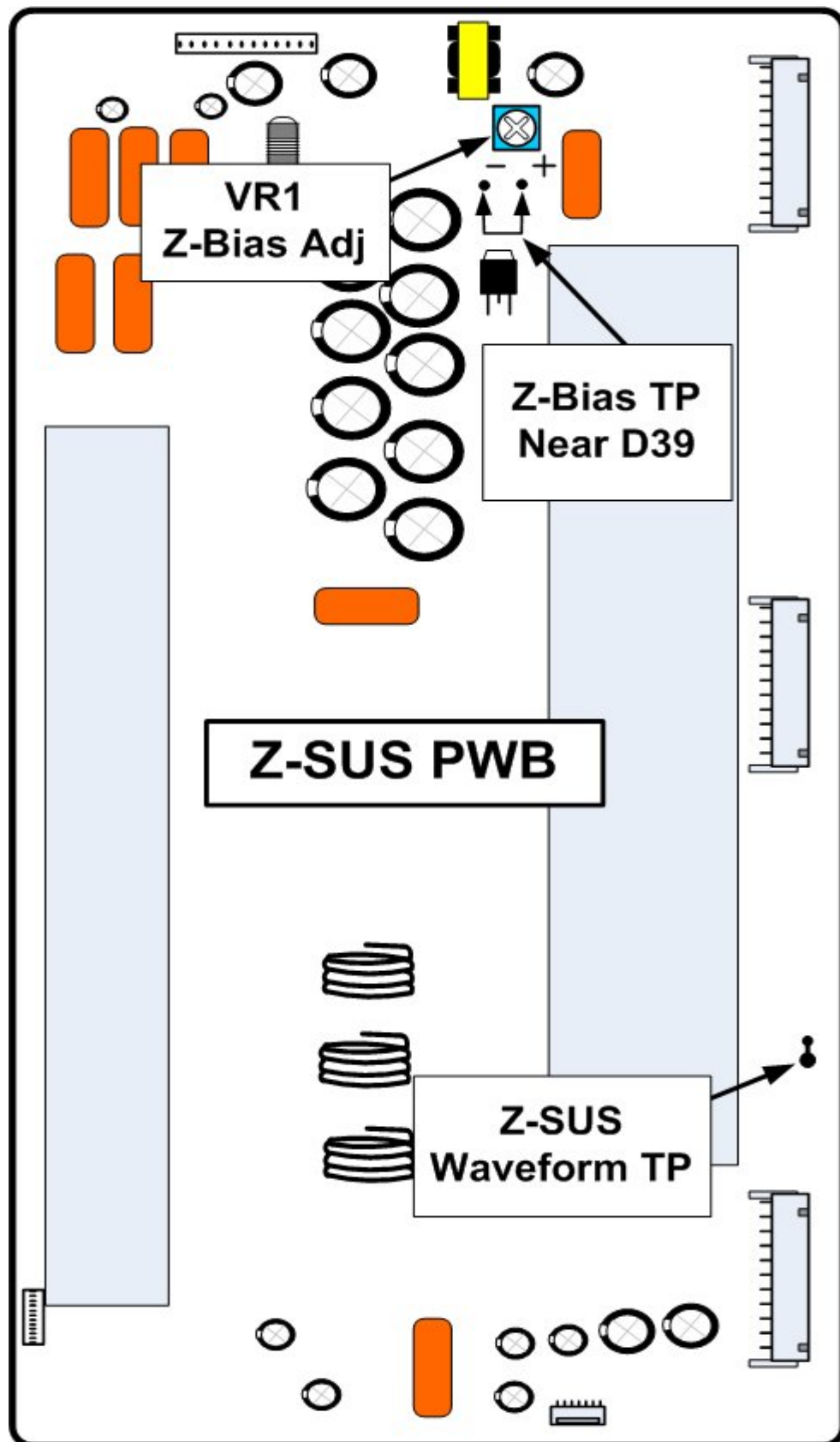Adjust VR1 while observing area (A) and set the flat portion to 10uSec ± 1uSec.

V SET-UP ADJUSTMENT:
Adjust VR5 while observing area (B) and set to 100V ± 2V.

SET-DOWN ADJUSTMENT:
Adjust VR4 while observing area (C) and set to 150uSec ± 5uSec.

60X7P Z-SUS PWB ADJUSTMENT POINTS

60X7 PANEL

VR1
Z-Bias Adj

Z-Bias TP
Near D39

Z-SUS PWB

Z-SUS
Waveform TP

60X7P Z-SUS (Z-Bias) ADJUSTMENT:

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
2) Place unit into White Wash from the Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as indicated on the panel voltage label in the upper right hand corner of the panel.**
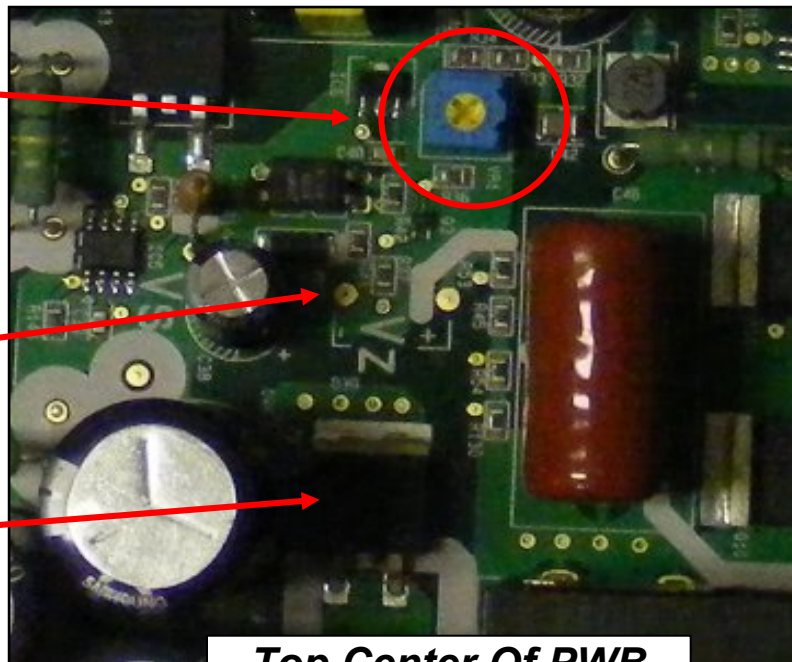
PROCEDURE: (See preceding page for locations)

1.   Place DC Volt meteracross the VZB TP (Near D39).
2.   Adjust VZB (Z Bias) VR1 in accordance with the Panel's voltage label.

```
Model : PDP 60X7 ####
All Voltage : DC 5V
Va : 60V      Vs : 190V
N.A. / -190 / 115 / N.A. / 100  → Zbias
Max Watt : 570 W ( Full White )
```


Z-Bias ADJ VR1

Z-Bias TP

D39

Top Center Of PWB

71H2 PANEL

QUICK REFERENCE

ALIGNMENT SECTION

MODELS USING THE 71H2 PANEL

71PY1M

LG

Life's Good

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71H2P BOTH SMPS PWBs ADJUSTMENTS

Every adjustment is made in "Full White Raster"

Model : PDP 71H2####
All Voltage : DC 5V, 15V
Va : 60V   Vs : 190V   -Vy : -80V
VSC : 120V   Vset-up : 230V   Zbias : 160V
Max Watt : 900 W (Full White)

5.6V Adjust
VR601

VA Adjust   VS Adjust
VR501   VR401

See procedure on next two pages

*Notice:
5V must be set to **5.6V**

Special Note: There are TWO Power Supplies in this set. SMPS adjustments must be done on Both SMPS Boards.

Each Power Supply must be adjusted in accordance to your specific Panel's Voltage Label. (Example shown above.)

***Except 5V MUST be adjusted up to 5.6V in stages.**

You should adjust first power supply up to 5.4V, then go to the other and adjust up to 5.4V. Then return to first board and adjust up to 5.6V then go to the other and adjust up to 5.6V.
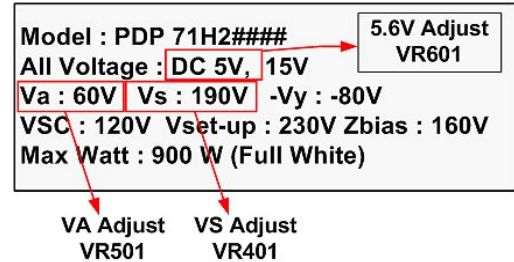
SMPS 1   SMPS 2
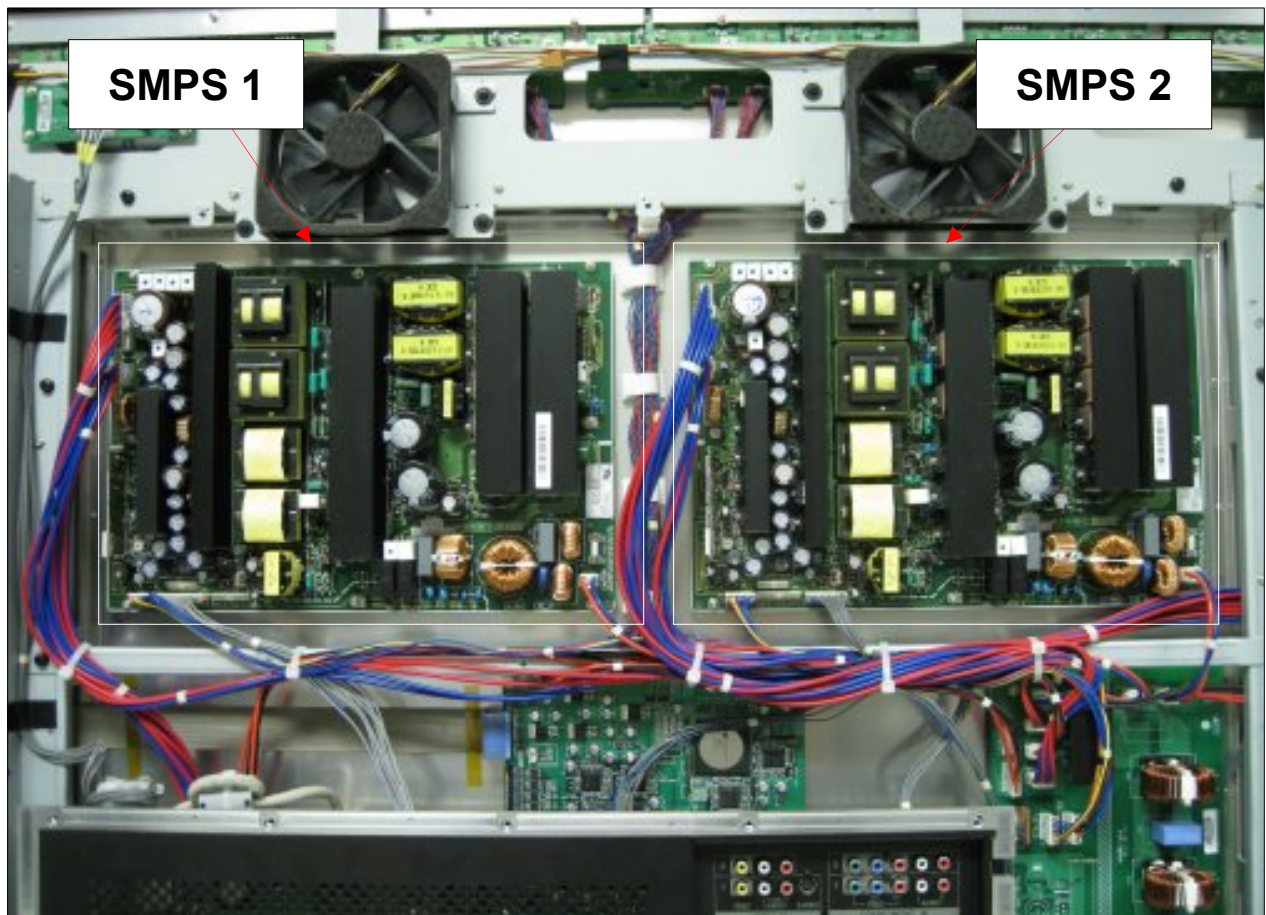
71H2P SMPS PWB (1) ADJUSTMENTS

Set should be in "Full White Raster"

These voltages are adjustable and should
be adjusted to the
correct values as indicated by the panel
label. (Except 5V → 5.6V)
Example label shown on the right.

Model : PDP 71H2####
All Voltage : DC 5V, 15V
Va : 60V | Vs : 190V | -Vy : -80V
VSC : 120V Vset-up : 230V Zbias : 160V
Max Watt : 900 W (Full White)

5.6V Adjust
VR601

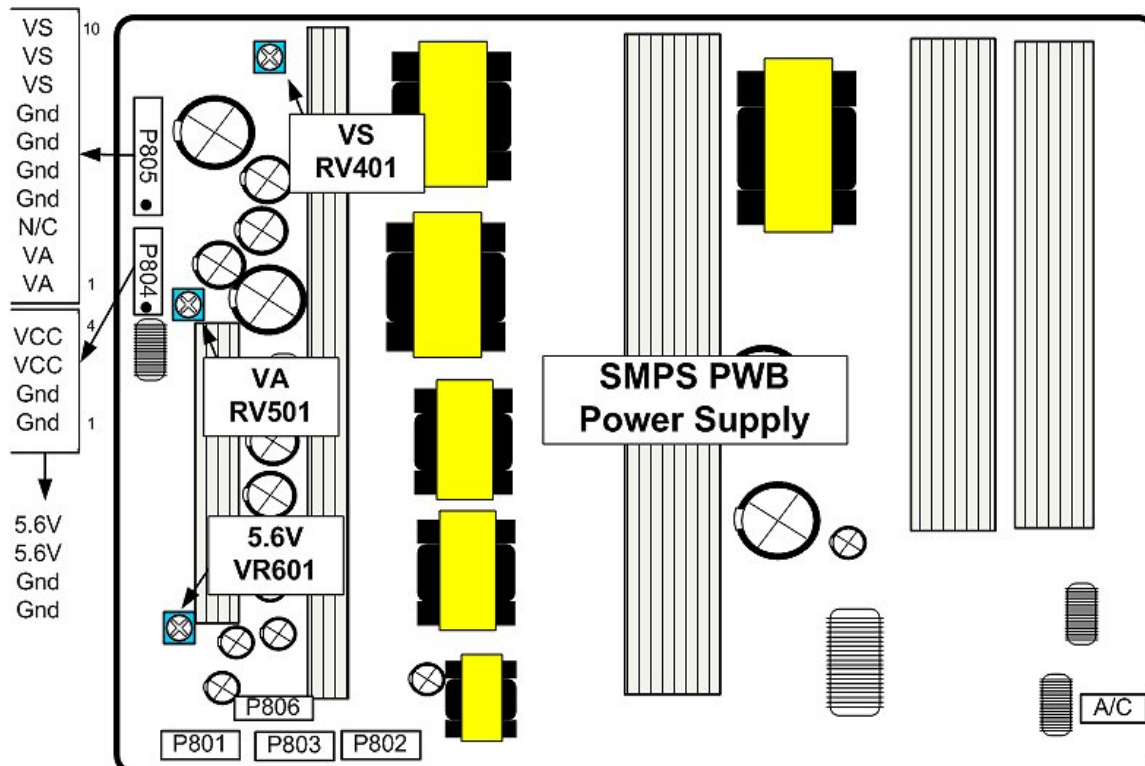VA Adjust
VR501

VS Adjust
VR401

5.6V VCC, VS and VA adjustment resistors are shown in the drawing below. They
are located on the left hand side of the board.
RV601 5V adjustment pot. (Adjust in stages up to 5.6V)
RV401 is VS adjustment. **RV501** is VA adjustment.

PROCEDURE: Must be done on Both SMPS Boards.

1) **VCC ADJUST:** <u>Connect DVM to pin 3 or 4 of P804.</u>
   <u>Adjust VR601 up to 5.4V, then move to other power supply.</u>
   <u>Adjust other SMPS to 5.4V, then go back to first power supply</u>
   <u>and adjust up to 5.6V then go to the other power supply and</u>
   <u>adjust up to 5.6V. Then return to first power supply and continue.</u>

2) **VS ADJUST:** Connect DVM to pin 1, 2 or 3 of P805. Adjust
   RV401 until the voltage matches the panel's voltage label.

3) **VA ADJUST:** Connect DVM to pin 9 or 10 of P805. Adjust
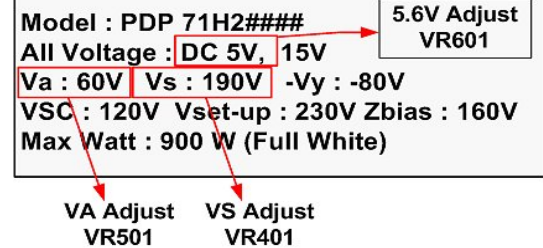   RV501 until the voltage matches the panel's voltage label.

71H2P SMPS PWB (2) ADJUSTMENTS

Set should be in "Full White Raster"

These voltages are adjustable and should
be adjusted to the
correct values as indicated by the panel
label. (Except 5V → 5.6V)
Example label shown on the right.

```
                                          ┌──────────────┐
Model : PDP 71H2####                      │ 5.6V Adjust  │
All Voltage : [DC 5V,] 15V  ──────────────│   VR601      │
[Va : 60V  | Vs : 190V]  -Vy : -80V       └──────────────┘
VSC : 120V  Vset-up : 230V Zbias : 160V
Max Watt : 900 W (Full White)
```

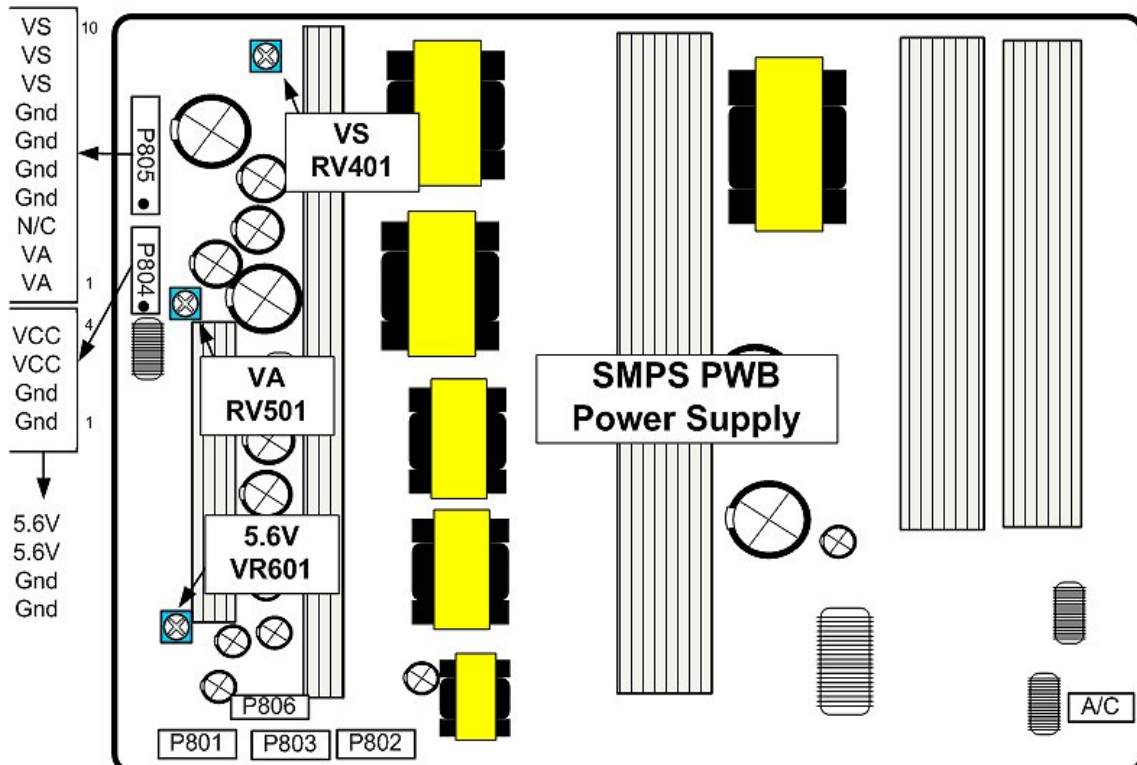VA Adjust   VS Adjust
VR501   VR401

5.6V VCC, VS and VA adjustment resistors are shown in the drawing below. They
are located on the left hand side of the board.
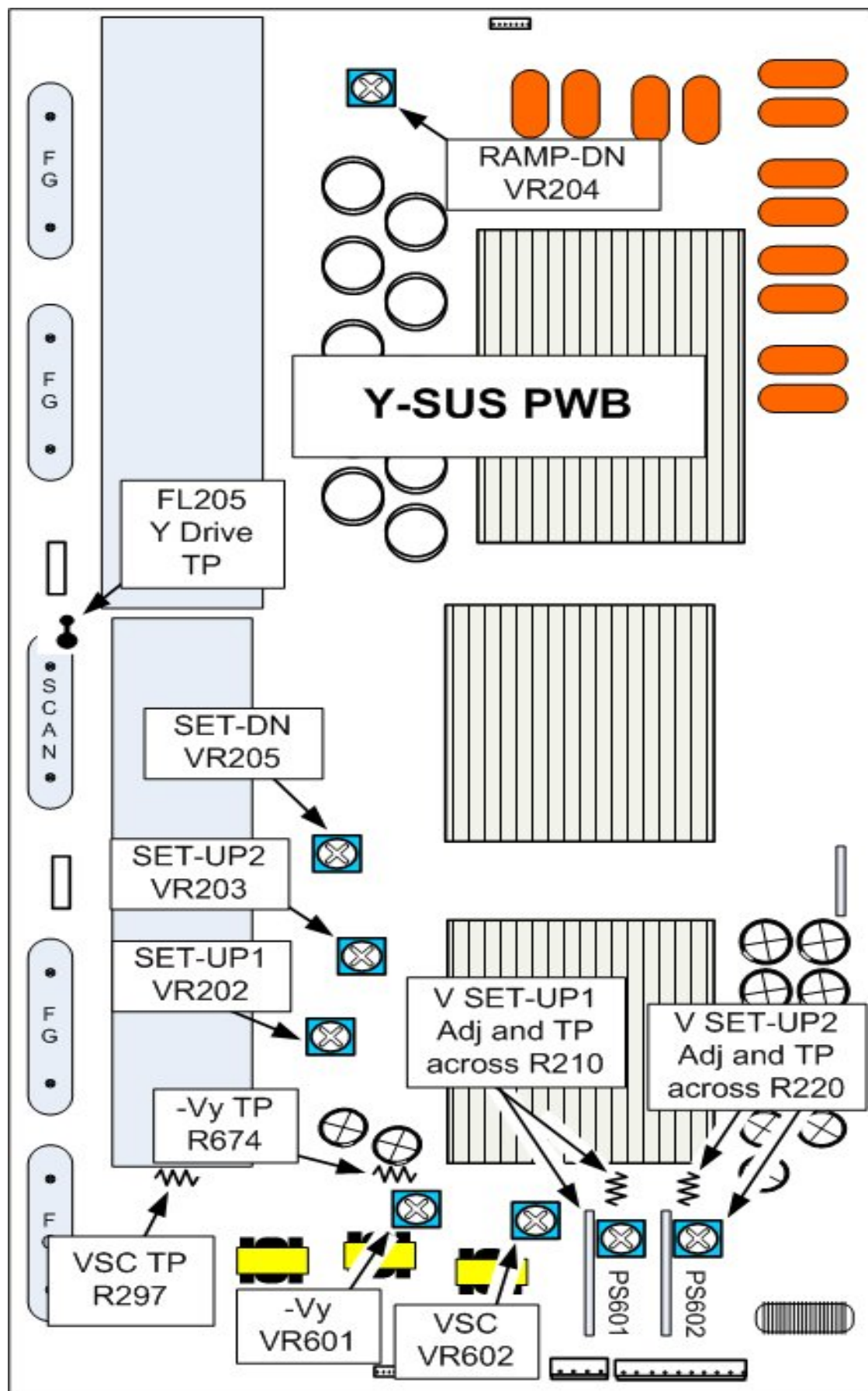**RV601** 5V adjustment pot. (Adjust in stages up to 5.6V)
RV401 is VS adjustment. **RV501** is VA adjustment.

PROCEDURE: Must be done on Both SMPS Boards.

1) **VCC ADJUST:** Note: See previous Power Supply adjustment
 page. The 5.6V adjustment should already be completed as
 described on the previous page.

2) **VS ADJUST:** Connect DVM to pin 1, 2 or 3 of P805. Adjust RV401
 until the voltage matches the panel's voltage label.

3) **VA ADJUST:** Connect DVM to pin 9 or 10 of P805. Adjust RV501
 until the voltage matches the panel's voltage label.

71H2 PANEL

71H2 Y-SUS PWB ADJUSTMENT POINTS

Y-SUS PWB

RAMP-DN
VR204

FL205
Y Drive
TP

SET-DN
VR205

SET-UP2
VR203

SET-UP1
VR202

V SET-UP1
Adj and TP
across R210

V SET-UP2
Adj and TP
across R220

-Vy TP
R674

VSC TP
R297

-Vy
VR601

VSC
VR602

PS601

PS602

F G

F G

S C A N

F G
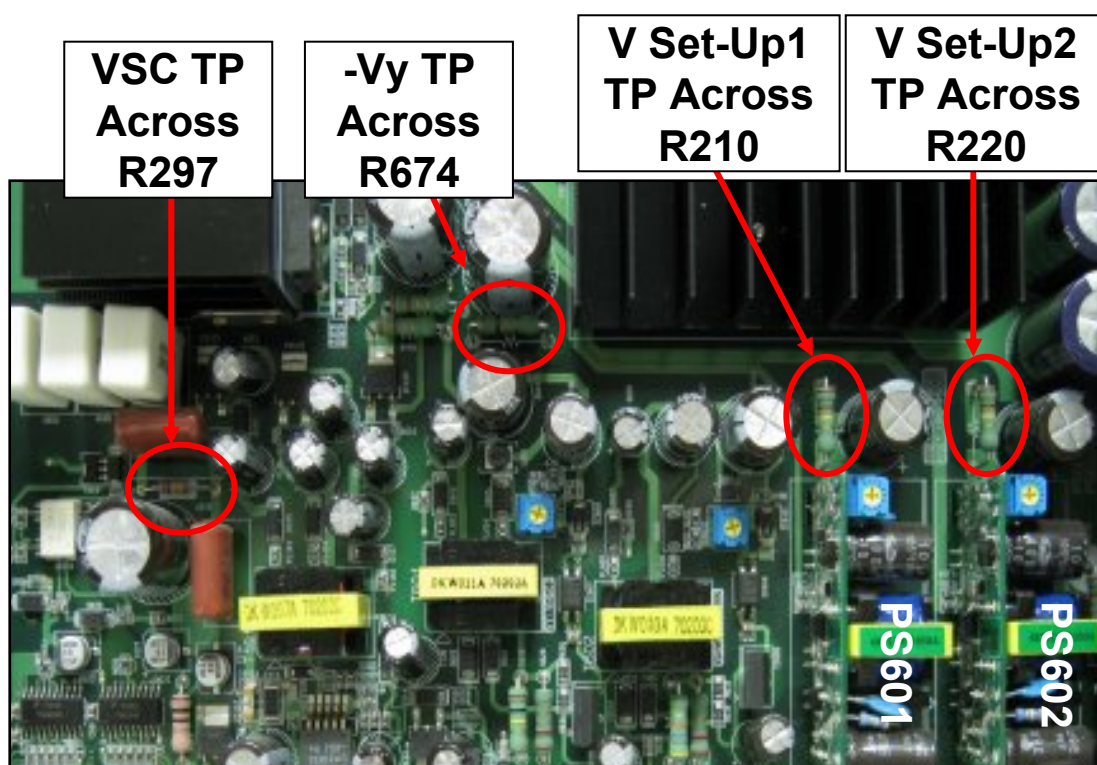
F

71H2 PANEL

71H2 Y-DRIVE ADJUSTMENT TEST POINTS

PREPARATION: (Refer to Y-SUS PWB Layout)

1) Pre-Heat unit for at least 10 Minutes
   before making adjustments.
   VS, VA and 5V adjustments should be completed.
2) Place unit into White Wash from the
   Customer's Menu for all adjustments.
3) **Be sure to use all adjustment values as
   indicated on the panel voltage label on the panel.**

PROCEDURE: (See figure below for TP locations)

See Next page for adjustment specifications.

ADJUSTMENT TEST POINT LOCATIONS
(See preceding page for TP location)

71H2 PANEL

| VSC TP Across R297	-Vy TP Across R674	V Set-Up1 TP Across R210	V Set-Up2 TP Across R220

Lower Side Of PWB

71H2 Y-DRIVE ADJUSTMENT LOCATIONS

PREPARATION: (Refer to Y-SUS PWB Layout)

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
   VS, VA and 5V adjustments should be completed.
2) Place unit into White Wash from the Customer's Menu for all adjustments.
3) Be sure to use all adjustment values as indicated on the voltage label on your specific panel.

LOCATIONS: See Y-SUS Drawing for locations.
(See figure below for TP and Adjustment location)

ADJUSTMENT LOCATIONS
(See preceding page for PWB pictorial)

-Vy Adj VR601	VSC Adj VR602	V Set-Up1 Adjust	V Set-Up2 Adjust
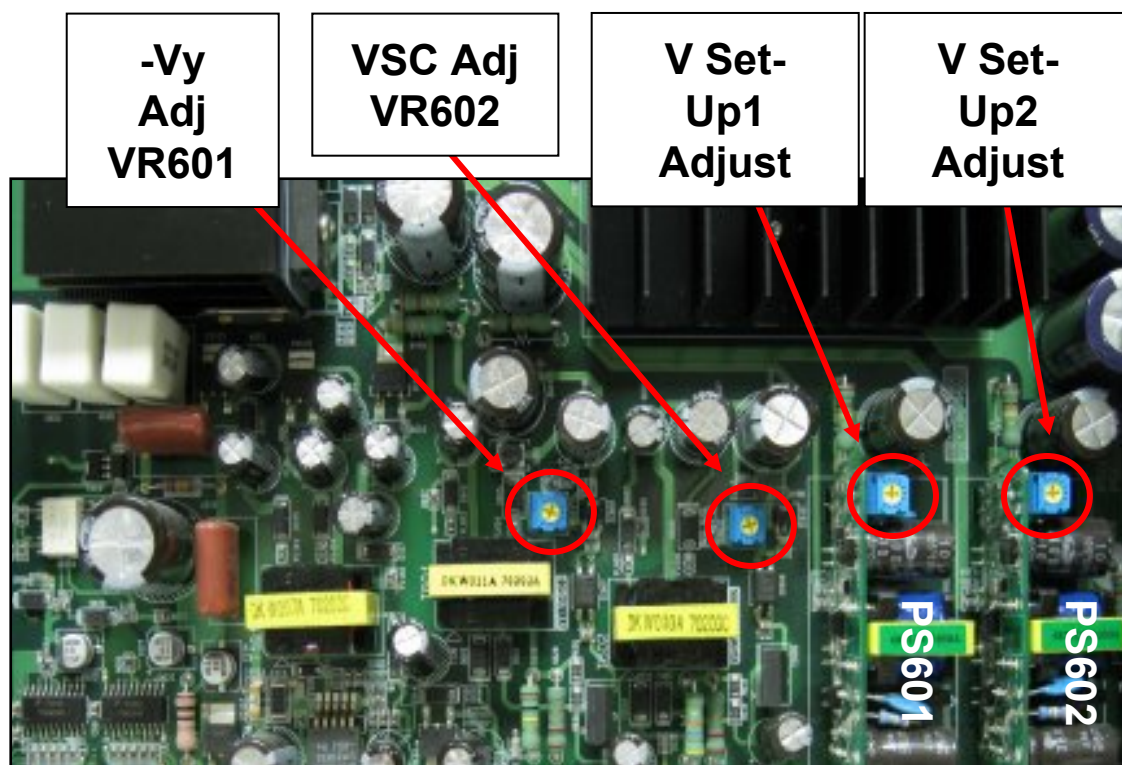
Lower Side Of Board

71H2 Set-Up 1 and 2, VSC, -Vy ADJUSTMENTS

PREPARATION:

1) Pre-Heat unit for at least 10 Minutes before making adjustments.
2) VS, VA and 5V adjustments complete.
3) Place unit into White Wash from the Customer's Menu.

PROCEDURE:
(Match all voltages in accordance with your specific Panel's voltage label.)

```
Model : PDP 71H2####
All Voltage : DC 5V,  15V
Va : 60V   Vs : 190V   -Vy : -80V
VSC : 120V   Vset-up : 230V   Zbias : 160V
Max Watt : 900 W (Full White)
```

VSC   V Set-Up   -Vy

ADJUSTMENTS: See preceeding two pages for TP and Adjustment locations.

1) **V Set-Up 1 Adjustment (On PS601)**.
   Measured across V Set-Up1 TP **R210**.
   Adjust the variable resistor on the PS601 board and match your panel's voltage label for Vset-up.

2) **V Set-Up 2 Adjustment (On PS602)**.
   Measured across V Set-Up2 TP **R220**.
   Adjust the variable resistor on the PS602 board and match your panel's voltage label for Vset-up.

3) **VSC Adjustment**. Measured across VSC TP **R297**.
   Adjust the variable resistor **VR602** and match your specific Panel's voltage label.

4) –**Vy Adjustment**. Measured across VSC TP **R674**.
   Adjust the variable resistor **VR601**and match your specific Panel's voltage label.

71H2 Y Drive Waveform Test Point
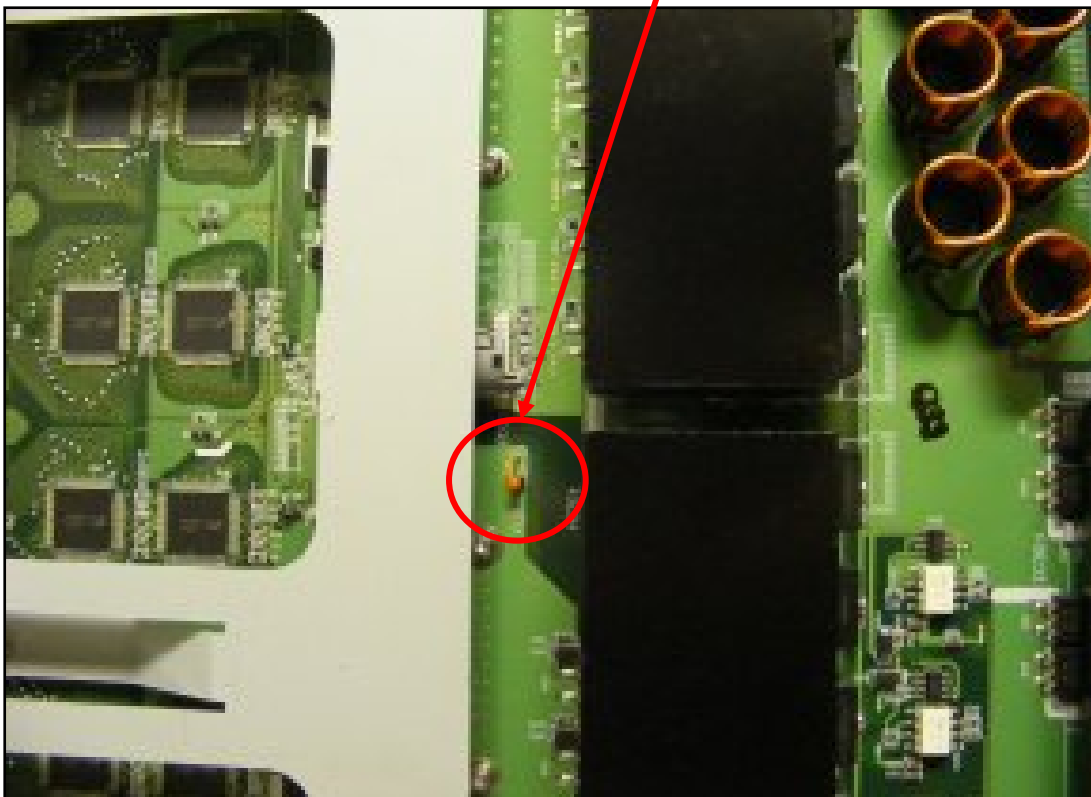
Two pages back show the Y-SUS PWB

Figure Below:
Shows a close-up image of the Y-Drive waveform test point on the Y-SUS PWB. TP **FL205**

V-Set-Up1, V-Set-Up2, Ramp-Dn and Set-Down portions of the waveform are adjusted using this TP.

TP LOCATION
(See next page for adjustment locations)

Y-Drive
Waveform TP (FL205)
V Set-Up and Set-Down

71H2 Y-Drive Waveform Adjustment

Using a Full White Raster.
VS, VA, -Vy, Vsetup 1 & 2 DC and VSC should be complete.

"Waveform" TP (FL205) on the Y-SUS PWB.

V SET-UP 1 ADJUSTMENT: (Using 1st pulse after blanking)
Adjust VR202 while observing area (**A**) in the 1st pulse and set the Peak to 170V ± 5V.
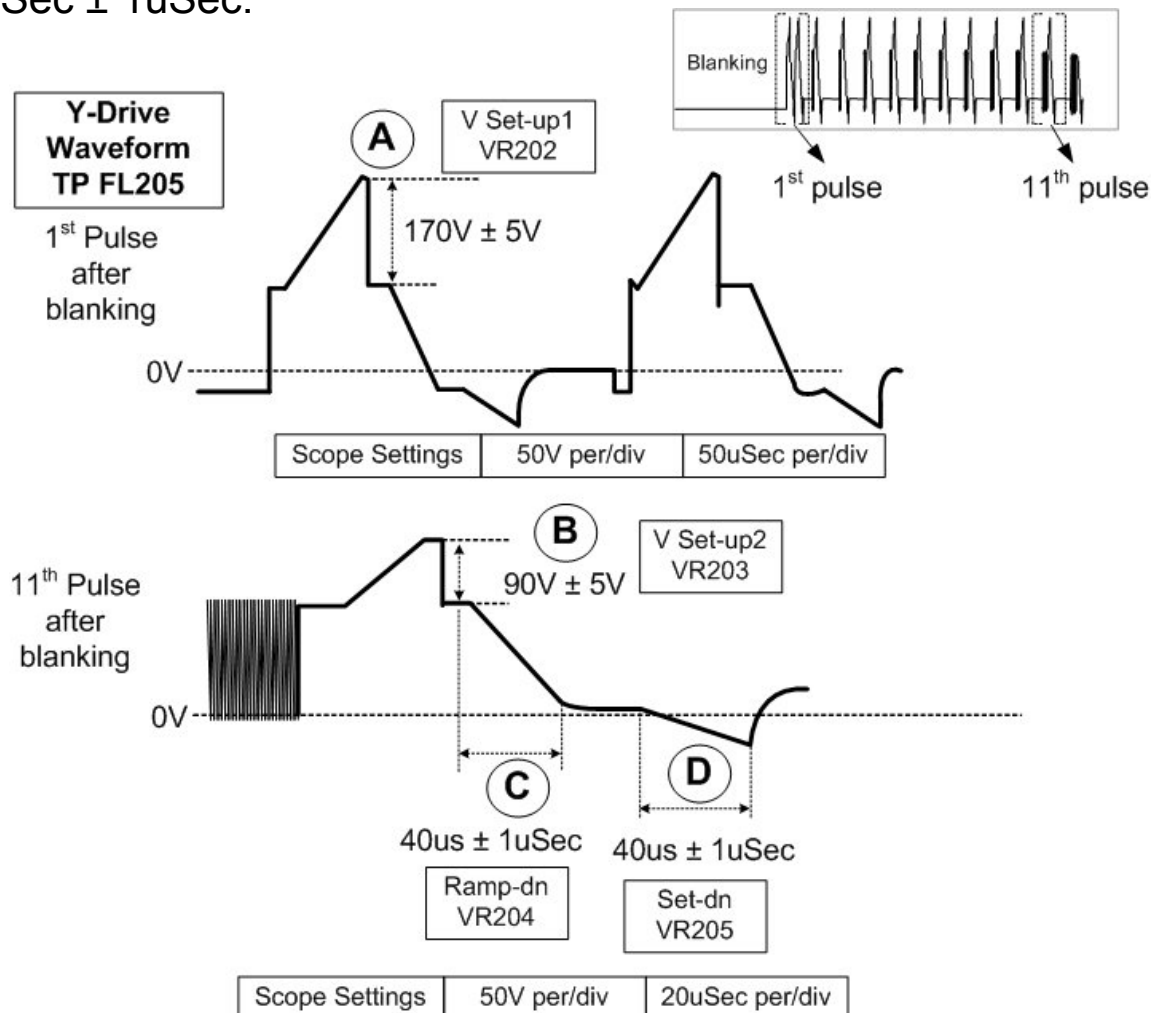**V SET-UP 2 ADJUSTMENT:** (Using 11th pulse after blanking)
Adjust VR203 while observing area (**B**) and set the Peak to 90V ± 5V.
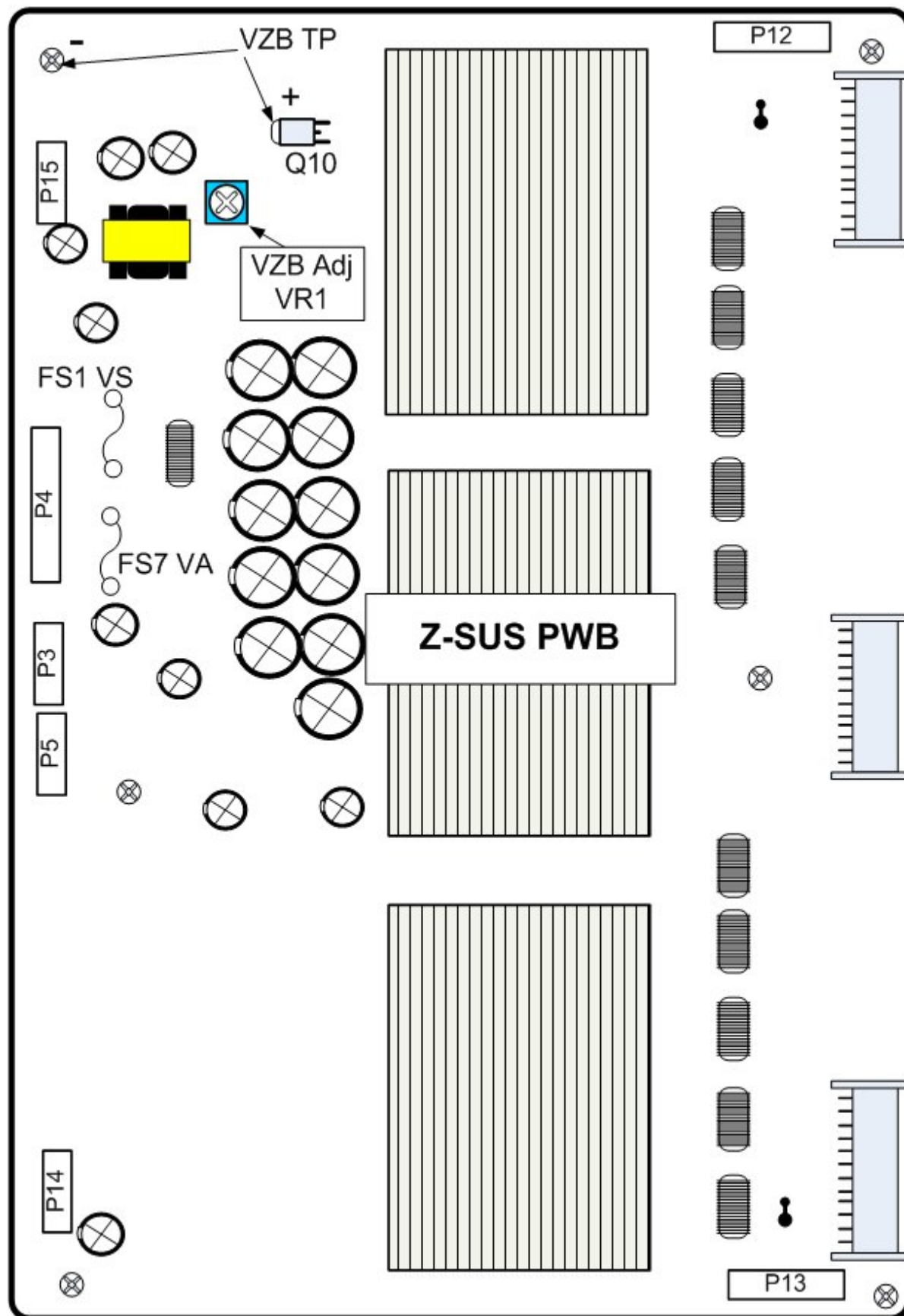**RAMP-DOWN ADJUSTMENT:** (Using 11th pulse after blanking)
Adjust VR204 while observing area (**C**) and set to
40uSec ± 1uSec.
SET-DOWN ADJUSTMENT: (Using 11th pulse after blanking)
Adjust VR205 while observing area (**D**) and set to
40uSec ± 1uSec.

71H2 Z-SUS PWB ADJUSTMENT POINTS

VZB TP

−

+

Q10

P15

VZB Adj
VR1

P12

FS1 VS

P4

FS7 VA

P3

P5

Z-SUS PWB

P14

P13

71H2 PANEL

71H2 Z-SUS (Z-Bias) ADJUSTMENT:
PREPARATION:
1) Pre-Heat unit for at least 10 Minutes before making adjustments.
2) All other adjustments complete.
3) Place unit into White Wash from the Customer's Menu.

PROCEDURE:
(Match all voltages in accordance with your specific Panel's voltage label.)

Model : PDP 71H2####
All Voltage : DC 5V, 15V
Va : 60V   Vs : 190V   -Vy : -80V
VSC : 120V Vset-up : 230V Zbias : 160V
Max Watt : 900 W (Full White)

Z Bias

PROCEDURE: (See preceding page forPWB Layout)

1.) Z Bias Adjustment. Measured from the Drain of Q10 to Chassis Ground.
Adjust the variable resistor **VR1** and match your specific Panel's voltage label.

Z-Bias TP From Q10 Drain to Chassis Ground

Z-Bias ADJ VR1
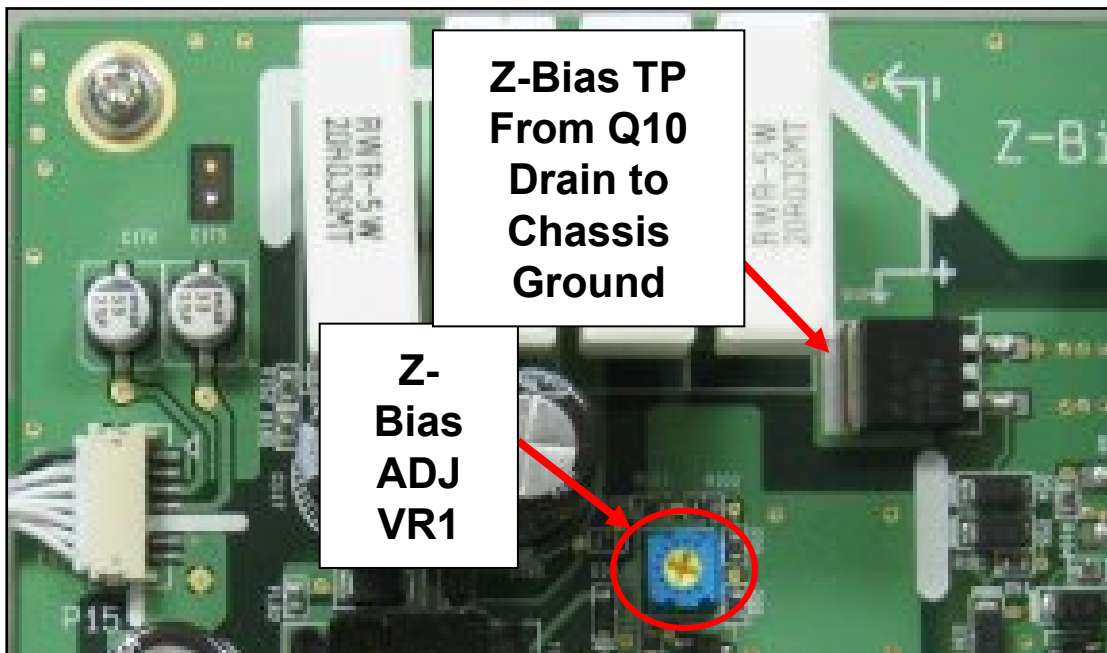
Top Left Side Of PWB

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